BUTANE-PROPANE News

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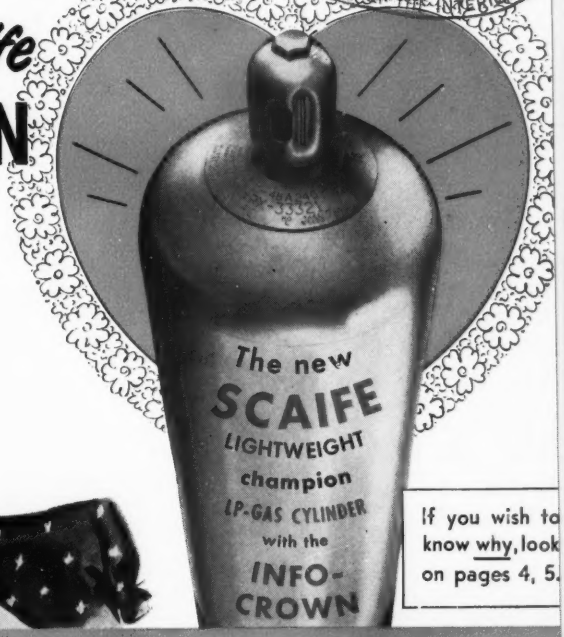

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SCAIFE COMPANY
Oakmont (Pittsburgh District), Pa.
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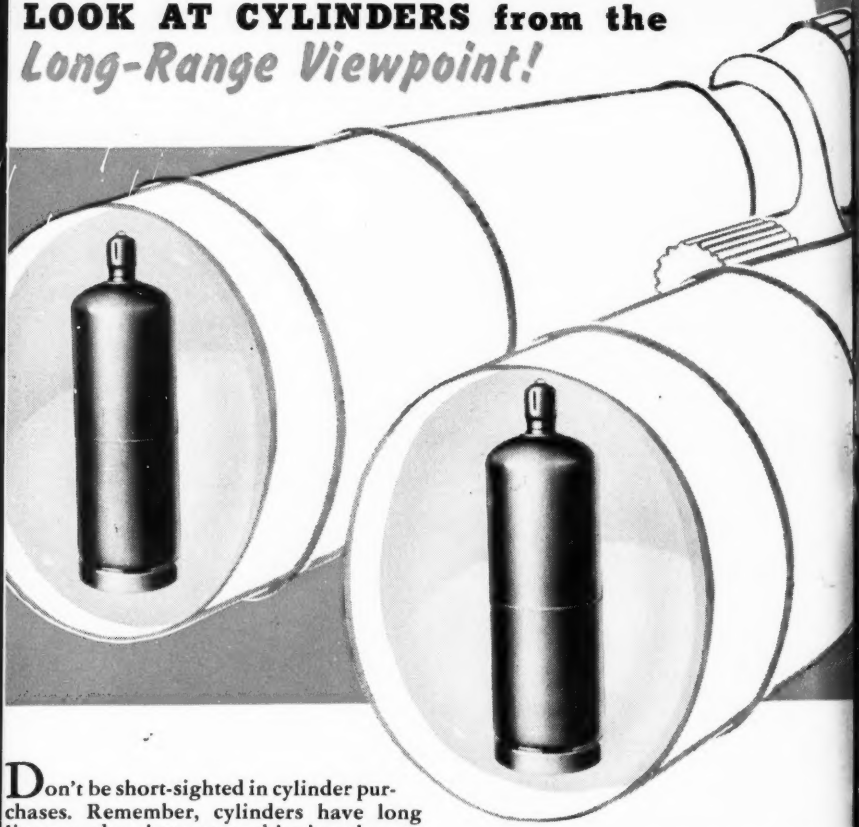
FEBRUARY, 1949—50c per Copy

LOOK AT CYLINDERS from the *Long-Range Viewpoint!*



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Gas meters identify your business with the gas business. Your customers and potential customers are already sold on meters. They don't quibble over meter readings as they may gauge readings. And meters are more accurate; present no opportunity for errors that cost you money. Too, they effect many economies. For example, with meters you can pipe several adjoining services from a single tank; schedule truck deliveries to suit your convenience, not the customers.

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WITH PRESSURE CAST ALUMINUM ALLOY CASE

ECONOMICAL TO BUY AND MAINTAIN, SAFE TO USE

The No. 00 meter is especially designed for measuring LP-gas from bottle gas sets, storage tanks and distribution systems. Made with strong, though lightweight, pressure cast aluminum alloy case, good for 10 psi working pressure. Won't corrode or rust. Meter is easy to handle, economical to ship. Only one external gasketed surface to seal. Built for accuracy and long life. Ample capacity. Write for bulletin 1163.

A REPAIR PLAN *TAILORED* TO LP-GAS DEALERS' NEEDS

There's no need to shy away from metering because of anticipated repair difficulties. We've streamlined that procedure, too. After a period of years, the complete measuring mechanism of the No. 00 can be replaced as a unit using only ordinary tools.

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BUTANE-PROPANE News (ABC) (ABP)

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LETTERS

• **BUTANE-PROPANE** *News* **welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed by them.—Editor.**

Gentlemen:

Please send information or the name of the party who could supply complete information on heating a greenhouse using unvented propane space heaters.

We understand there is an advantage in these unvented heaters because of the increased CO_2 content in the air. Please verify.

D.H.V.

Nebraska

Propane gas is being used in greenhouses in California with considerable success. Unvented heaters are preferred, due to the increase in humidity and the benefit of the CO_2 in the products of combustion.

Each greenhouse has a problem of its own. Some can be heated by using a number of small, unvented heaters located in various parts of the building.

The heat should be applied low—at the ground level—or below the beds if they are elevated above the ground.—Ed.

•

Gentlemen:

I have a number of 250- and 500-gal. propane underground tanks installed here and they are put into the ground with just the top of the dome aboveground for filling.

I would like to know if there is any danger of the fuel in these tanks or vapor not coming through when the temperature gets around 30 to 40 below zero, and when the frost gets down to the bottom of the tank, say 5 or 6 ft., providing it should happen to be a cold winter.

Also it would stop the frost going down that far to bother the propane fuel, if a good layer of straw, say a foot deep, was put over to cover the tank in the fall, leaving open the filling dome cover only? Kindly advise me.

W.R.M.

Alberta, Canada

Propane boils at minus 44°, so you will have a little leeway between the temperature of the frozen ground and the tank temperature.

If your loads are not too heavy, you may get through the winter without trouble. Anything that will help prevent the ground freezing would be good.

The theory of the underground tank system is that it is buried below the frost line, thus having access to the heat in the soil to provide vaporization.

If you do have difficulty on large users, the installation of a vaporizer and using liquid withdrawal would solve your problem.—Ed.

•

Gentlemen:

Last year our "freeze-ups" ran high and at times service calls absorbed all of our profit on the gas delivered. We had as many as seven calls before 7 a.m. in one day.

A check on dates cylinders were turned on developed that in nearly every case the cylinder had been in use from 3 days to a week when the freeze-up occurred. On Dec. 10 we had two freeze-ups. One cylinder had been on one day and the other seven days. I have no idea what this indicates. We have been very careful to keep valves closed on empties.

Twice when purging new cylinders, to get the air out, something momentarily blocked the valve. It looked like water. Small drops remained in

the POL threads. This gave us the idea of being more thorough with our purging operation. Since early October we have treated every empty cylinder as follows:

Inject ¼ pint of methanol alcohol with the use of the Rego injector and propane gas pressure. Invert the cylinder on a rack and clean and paint the bottom. The rack holds 10 cylinders and we leave each cylinder inverted half an hour or longer while we inject alcohol in the next group of 10. Drain the cylinders and again inject ¼ pint of alcohol in each cylinder. Stamp each cylinder so purged with a "P" for purged.

We have been having some freeze-ups all fall but to date (Dec. 12) there have been no freeze-ups in cylinders so treated. This of course is not conclusive and I am passing it along at this time for what it may be worth as a suggestion to others.

We caught the drip from these cylinders and as much oil came out as alcohol from the used cylinders. The older cylinders had more oil than those of later dates. New ones just received contained no oil.

It seems quite certain that this oil is absorbing the odorant and giving it off in powerful doses as the cylinders empty.

In treating our cylinders it appears that we are not only lessening or possibly eliminating our freeze-ups but that we may have stumbled onto a process to do away with some of our "stinker" complaints in 100-lb. cylinders. To purge the larger tanks presents another problem.

H. E. BABCOCK

Battle Creek, Michigan

The accompanying letter from H. E. Babcock fairly proves that freeze-ups are due to water and when it is removed trouble is prevented.

Extreme odors from the last of the gas in old cylinders are common. Some of the odorant remains in the cylinder, penetrating the steel walls and concentrating in any heavy ends remaining in the cylinder.

There is usually a very small amount of an oily substance in LP-Gas which may be lubricating oil from compressors, valve lubricant, pump packing lubricant, etc. This quantity is very small, but, on continuous use of cylinders, a little is left in the bottom each time and after several years' use the bottom of a cylinder will become covered with a sticky material that has a very strong odor.

Two articles appear in this issue bearing upon these problems. One deals with remedies for regular freeze-ups and the other discusses cylinder purging and testing. (See pages 41 and 48.)—Ed.

•

Gentlemen:

We are writing for any information you may be in a position to give concerning a suitable pump for the transfer of propane from the conventional 100 lb. ICC cylinders to 20 lb. conventional trailer cylinders.

Being located in a tourist section, we have practically had this type of business forced upon us and we find that it is not very profitable, due mostly to being unable to procure a pump adaptable for this class of service. At the present time we are using a gear type pump which has a normal capacity of 10 gallons per minute, geared down so as to deliver approximately 2 gallons per minute under normal filling pressures.

The greatest disadvantage to this pump is the large 2-inch inlet and discharge ports and the fact that the POL valve on the 100 lb. cylinders gives such a restricted flow as to cause improper operation of the pump. To overcome this we have installed a second or sump tank to empty the 100 lb. cylinders into and pump from the sump tank which has 1½ inch outlet.

This works fairly successfully but we find it impossible to have a perfect seal at the packing gland of the pump and considerable propane is lost during shutdown periods; in fact, we have estimated that we lose ap-

proximately 5 lb. if the pump is shut down over a 2-hour period. While this is not a serious loss when filling a large number of cylinders at one period, it becomes excessive when trailer tanks straggle in one at a time throughout the day.

We would like your opinion as to the feasibility of pumping propane with a diaphragm type pump, one which operates on the principle of fuel pumps for automobiles.

R.E.G.

Florida

The filling of trailer cylinders is a problem and transfer from a standard ICC 100 lb. container is a slow and unsatisfactory method.

We do not know of the use of small diaphragm pumps for this use. The average automotive unit would not be suitable due to the high suction and discharge pressures involved.

An unrestricted suction line is required for any type of pump, as excessive pressure drop in the suction line tends to make the liquid vaporize, causing vapor lock in the pump and excessive wear.

The packing gland leakage you have is in excess of what it should be. The bottom of your sump tank should be about 5 feet above the pump suction and the suction line should be 2 inches.—Ed.

•

Gentlemen:

Can you tell me if there is any way of changing a carbide gas lighting system to LP-Gas?

We have a customer that wishes to have this done if it is at all possible, providing the cost is not too great.

E.J.B.

North Dakota

The changeover from carbide to LP-Gas should be relatively inexpensive and easy.

The piping should be checked for tightness and the orifices in the light fixtures changed to burn the LP-Gas.

We refer you to the General Gas Light Co., Kalamazoo, Mich., for the size orifices required. Advise them of the Btu content of the gas you sell.

An ordinary tank gas set up with house piping pressure of 11 in. water column will be satisfactory.—Ed.

•

Gentlemen:

Doesn't air pressure in excess of normal vapor pressure collapse propane vapor into liquid? This would seem a very good way to unload tank cars if the moisture in the air wasn't too excessive.

Couldn't flexible hose be used (rubber) in the line to manifold bulk storage tanks together? The ground here freezes four feet deep and cracks open and we are afraid if pipe is used this will put too great a strain on it and the valves and threaded connections causing leakage troubles.

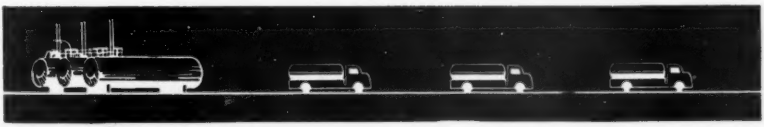
J.W.T.

North Dakota

In reply to your inquiry regarding unloading tank trucks, the use of air pressure to transfer liquefied petroleum gas is not recommended due to the possibility of formation of a combustible mixture in the container.

Hose connections between bulk storage tanks, unless removed after each use, are not acceptable. NBFU Pamphlet No. 58 requires steel piping and fittings.

The reason for this is hose or other materials that have a low melting temperature or will burn can be destroyed by an outside fire exposure with the possible release of LP-Gas to the atmosphere that might cause a fire of considerable extent.—Ed.



open for business...

This month, Sid Richardson's big, new gasoline plant in West Texas will be "open for business." We have developed a new purchase plan for buyers of L-P Gas in which you, as a customer, assist in establishing *your own gas costs.*

We know you'll be interested in this plan and we'll be happy to give you the complete facts if you'll call, wire or write us.

Sid Richardson
GASOLINE CO.
629 FORT WORTH CLUB BUILDING • FORT WORTH, TEXAS

COMMENT

A decision of great importance to LP-Gas industry has been rendered by the Public Service Commission of Indiana.

That body has stated in no lukewarm terms that an LP-Gas dealer's business bears no relation to a public utility operation. Only uninformed public officials and jealous competitors have ever tried to make it so appear.

Yet, ever so often our industry has to defend itself in this regard. Let dealers clip the Indiana story appearing in this issue and keep it handy to show the next public service commission that is petitioned to regulate an independent operation as they would a public utility.

•

When, in December, we published an article by T. W. Legatski stating that existing supply and refining facilities were six times the current consumption of butane, and that potential resources were far beyond that figure, our object was to combat the many reports of competitive fuel salesmen, and the fears of some of our own dealers, that production was at its peak and that the industry might not be able to expand.

LPGA President Kenneth H. Koach has written us that publication of the article may create some false sense of security among dealers in that they might construe the statements to mean that they no longer need to operate on the conservative basis recommended during the past several winters of short fuel deliveries; that gas is already in excess of demand; that campaigns to sell larger consumer storage, and to establish better summer-winter fuel ratios are no longer necessary.

Mr. Legatski did not intend that any such conclusion should be drawn. In fact, he states in one paragraph that there has been a current shortage, due to insufficient refining, storage, and transportation capacities, although greater recovery could and would be made from existing facilities if adequate storage and a balanced demand justified it.

Dealers must not be misled into a false sense of security by taking for granted that there is a currently unlimited supply of fuel and that they need no longer use judgment in selling fuel contracts, nor to try to build larger summer loads.

But they can be confident that ample production and refining facilities exist for greatly increased volumes when the industry is ready to absorb it on a sound economic basis.

•

Insurance rates are outrageously high for LP-Gas operators. The casualty companies would have us believe this is necessary because the accident rate is high.

Actually, the industry has an enviable record. If rates were based upon the dollar value of fuel sold against the dollar loss from fire and accident it would make a far better showing than that of any competitive fuel, including electricity, oil, coal, wood, or corn cobs.

Here's what has happened in the natural gasoline plant industry, where LP-Gas is recovered, since 1936:

	Insurance Value	Fire Loss	Fire Loss $/100
1936-1945	34,000,000	22,000	.064
1946	77,000,000	36,000	.046
1947	99,000,000	21,000	.021

•

Speaking of volume, what do you think of this? There was nearly as much butane and propane sold in 1948 as manufactured gas. At the rate of growth normal to both industries for the past 10 years, LP-Gas will be far in the lead by next year.

Remembering that a therm of gas is equivalent to approximately a gallon of LP-Gas, these figures for 1948 will amaze you:

	Therms.
Total gas	31,000,000,000
Natural gas	28,000,000,000
Manufactured gas	3,000,000,000
LP-Gas	2,500,000,000

•

Legislatures are meeting in 44 of the states this winter. Some of them will consider LP-Gas laws and, unless industry members are alert, unfavorable statutes will get on the books.

Make it your business to find out what is pending in your state and enlist the aid of your state association or one of the national associations in fighting any bill that is unjust to the industry or unfair to the public.

•

W. G. Duncan, president of the Ohio LP-Gas Assn., states:

"There is only one way we will lose any of the potential LP-Gas customers to competitive fuels and that is to fail to contact the purchasing individuals and explain the advantages of gas.

"There is no fuel really competitive to LP-Gas. We only lose a sale to competitive fuels when we fail to get the facts to the prospective consumer."

And Lou Gehring, talking upon the subject of safety, states a truism that every dealer should frame for his office:

"The majority of accidents stem, not from your end of the business, but from the consuming appliances.

"It is your serviceman's job to not only know exactly what your lines are feeding but to explain to the housewife the hows, wheres, and whys of the appliances under her control."

•

In 1948 the LP-Gas industry used an estimated 65,000 tons of steel as against 53,000 tons in 1947 and 39,250 tons in 1946.

•

Public service commissions are sometimes over-zealous in seeking to perform their believed obligations to the public.

In Louisiana the commission has brought suit to gain jurisdiction over the LP-Gas industry there and to disqualify the duly established Liquefied Petroleum Gas Commission which has seemingly been doing an excellent job of directing the industry. The PSC would turn butane dealer operations into utilities.

There is a personal angle to the present suit. Harvey Broyles, newest member of the Louisiana PSC, admits that back of the program is his desire to carry out a campaign promise to reduce the cost of fuel in the state—and he evidently wishes to attract the attention of voters to his present activity.

We are confident our industry will win out ultimately for there is no parallel between LP-Gas operations and those of utilities, but meanwhile there are expenses and confusion that are detrimental to all concerned.

•

By Ed.

BEYOND THE MAINS

YEAR-END summaries show dramatically how our industry has continued to leap ahead.

High spots from the report of K. W. Rugh and E. O. Mattocks, of Phillips Petroleum Co., published last month in BUTANE-PROPANE *News* are:

Total volume of liquefied petroleum gas marketed during 1948 29.5% higher than 1947.

Domestic distribution, (including certain other uses of gas sold by domestic distributors)—up 33.9%.

Total volume has more than doubled in three years.

•

Our prediction is a continued substantial growth in total volume in 1949. Millions of households, business establishments, and small and large manufacturers are still using fuels that are less good, when they should be using butane-propane gases.

These represent our industry's opportunity. Meanwhile there should be more gas available as time goes on. As war-created shortages of materials ease, more gas can be stored. One of these days there will be more railway tank cars and highway tank trucks. Availability of needed equipment also will lead to substantially larger quantities of butane-propane gases being recovered.

•

About a third of gas appliances manufactured in 1948 were for liquefied petroleum gas.

•

Hot water heater sales for use of butane and propane were good during 1948. But it's well to be on one's toes for the future. And perhaps our industry can learn something from a thought of a progressive utility man, Robert E. Ginna, vice president of Rochester Gas and Electric Corp.

Mr. Ginna has expressed his belief to the writer that, in selling hot water heaters, there might well be greater emphasis on the health angle.

Surveys, he points out, have shown that hot water is unimportant to a surprisingly large number of families. The idea of plenty of readily available hot water must be put over, apparently, with the same two-fisted tactics that sold mechanical refrigeration a while ago.

•

The methods of the electric people in promoting the electric blanket idea are of interest in connection with the hot water discussion above. It seems the American Medical Assn. wouldn't go so far as to say an electric blanket would cure a cold. But they did say some less strong things in its favor. And that health incentive, with

authority behind it, is being used to sell electric blankets. Hot water, through the cleanliness and sanitation it brings, has some even more clear-cut and undebatable health angles. Perhaps the butane-propane industry in cooperation with gas utilities can find some way to use them more emphatically.

And water heaters are proved money-makers.

•

It would be desirable to wake up faster to opportunities presented by commercial cooking sales, in everything from a medium-sized restaurant to a large hotel or institution beyond the mains.

This field alone is a tremendous one for LP-Gas, and with rich untapped possibilities in many areas. In some big jobs it takes a lot of study to bid intelligently. But once sold, these jobs not only can pay profits themselves, but can be a talking point and free advertisement in selling domestic consumers.

For selling the smaller commercial cooking jobs, the thing for a salesman to keep in mind is to get into the kitchen and find out what's going on there, not leaving after trying to date up the pretty cashier.

•

Rise in Wall Street prices following the President's early January talks was significant. From what we hear, many people were holding up purchasing securities and a lot of other things, and delaying making business commitments, for these messages. Now people in our industry and others will know better what to figure on from the government. The President's messages were less drastic than expected and a lot of the program won't get past the Republicans and certain Democrats in the Senate.

•

At the turn of the year, supply situation in our industry had improved to where sufficient cylinders were available, and in the East, an adequate supply of gas.

•

Congratulations to the Liquefied Petroleum Gas Association on its commencement of a fight to the finish against the new half-truth and untruth campaign of the electrical industry against LP-Gas.

•

The day of the fellow who has been sitting on his posterior, expecting business to roll in, is at an end. Plenty of people are doing O.K. But they're mostly the ones who had sales and promotion plans all made. They didn't just dream about selling, but were set to start out ringing doorbells, and had figured out in advance where and when and how.

Ed Titus

REGULATOR FREEZE-UPS

Causes Remedies

By HAROLD W. WICKSTROM

Technical Editor, BUTANE-PROPANE News, Los Angeles

EVERY winter dealers are confronted with cost of servicing and complaints of customers concerning service outage due to regulators freezing.

H. W. WICKSTROM

And each year we repeat that there is no need for such service interruptions.

LP-Gas will give no trouble in regulators if there is no water present. Remove the water and you remove the cause.

In an article published in an early issue of BUTANE-PROPANE *News*, entitled "Dehydrating Commercial Propane," by K. H. Hachmuth, research engineer, Phillips Petroleum Co., we find the following fundamental statement:

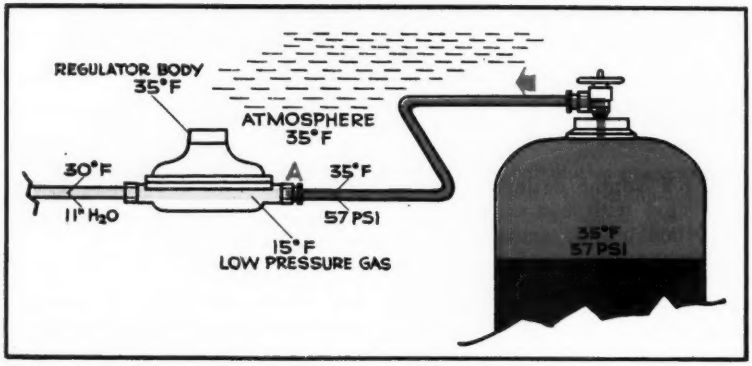
"Commercial propane . . . invariably contains appreciable amounts of dissolved and often entrained water unless it has been subjected to special dehydration treatment. The removal of this water becomes an imperative necessity if uninterrupted fuel service is to be assured, since the water saturated product has been shown to give considerable trouble when it is used in cold weather. Experience has demonstrated that at temperatures between 25°F and 35°F conventional propane pressure reducing regulators tend to 'freeze up' when operating on the vapors distilling from a water saturated product.

"This trouble has been traced to the refrigerating effect obtained on expanding the vapors through the regulating valve which results in the valve becoming colder than the surrounding atmosphere, whereupon a partial condensation takes place on the upstream side of the valve.

"Since liquid propane will dissolve only a small proportion of the water contained in saturated propane vapor, most of the water con-

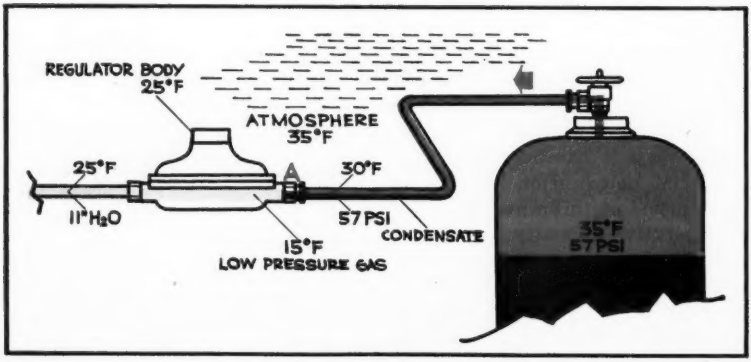
REGULATORS have a habit of "freezing-up" at this time of year and many readers write to us for advice which will help them solve this problem. In the accompanying article, Mr. Wickstrom has told why an icing condition appears and what to do about it.

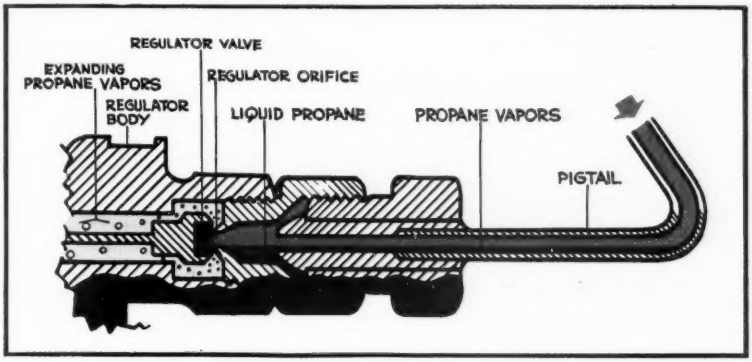
Closely related to this subject is the purging and refilling of cylinders, for if such operations are not conducted with care moisture may get into the cylinders and hence into the fuel. This subject is covered on page 48 in this issue.—Editor.



Condition 1—Start of flow. Atmosphere 35°F. Cylinder contents 35°F. Pressure 57 lbs. per sq. in. in cylinder. Reduction in pressure through regulator reduces gas temperature on downstream side of regulator seat to 15°F. due to heat required for expansion. Gas passing through outlet of regulator 30°F, having been warmed up by heat transferred through regulator body from atmosphere.

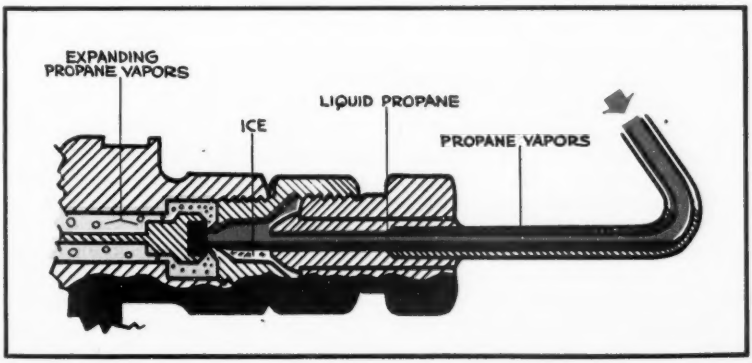
Condition 2—Flow continues. Atmosphere remains at 35°F. Tank is large enough to transfer heat from atmosphere to take care of vaporization so tank temperature and pressure remain the same. Due to continued load, body of regulator starts to cool and temperature of regulator drops to 25°. Temperature of pigtail leading into regulator drops to 30°, causing partial condensation of the propane vapor ahead of the regulator orifice.

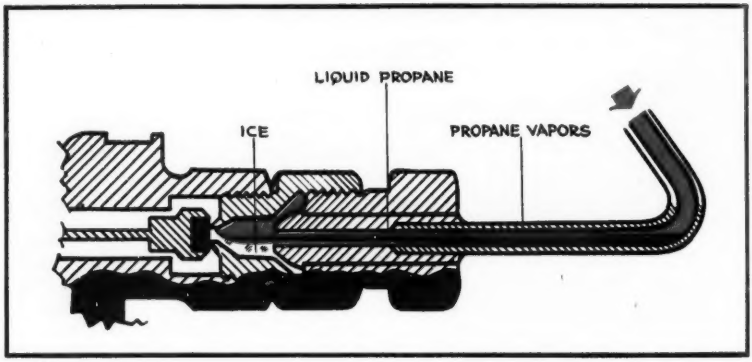




Conditon 3—Particles of liquid propane start to pass through regulator orifice and expand to downstream side. In addition to the heat required for expansion of gas, heat must come through regulator body and connecting piping to supply latent heat of evaporation, further reducing the temperature of the regulator body and the high pressure entrance area and pigtail.

Condition 4—Propane vapors can carry much more water than liquid propane. When partial condensation occurs, water that was easily carried by the vapors drops out as free water and, due to temperature of regulator and pigtail, starts freezing to the metal.





Condition B—Complete stoppage due to ice blocking entrance. No flow.

densed with the propane remains behind as ice, while the liquid propane blows through the valve and is vaporized on the downstream side. The ice deposit gradually builds up as the regulator is used until the valve is so effectively blocked with ice that it will no longer operate."

The industry has known the cause of the trouble for 16 years but still we put up with it.

Where does the water come from and how much will cause trouble?

Why do some installations function all winter and others of the same size, type and load characteristics give trouble?

Why does the same fuel work in one and not in another?

It will be the purpose of this article to attempt to visualize what happens and to explain why.

Where does the water come from?

There are a number of sources of moisture in the fuel.

Unless the product is processed at the refinery to remove the water content, there is a good possibility that it will be water saturated. (100 lbs. of propane "completely saturated" with water contains only .049 lbs. of water at 100°F. See Table 1.)

Completely dried propane can be contaminated with water that has accumulated in tank cars that have carried a wet product.

Water left in tanks after hydrostatic test can be picked up by dry propane.

An empty cylinder can be contaminated by being allowed to stand in moist atmospheres with the valve open, allowing moist air to breathe in and out of the container with subsequent condensation of the moisture.

Rain or snow can accumulate in

connections and be forced into the tanks during filling.

What amount of water can be carried in solution in propane?

Referring again to the paper by Hachmuth, experimental work developed the figures in Table 1.

TABLE 1

Temperature °F	Water Soluble in Liquid Propane % by Weight
32	.006
40	.008
50	.011
60	.016
70	.022
80	.029
90	.038
100	.049

Percentages are abstract. To illustrate exactly what they mean, they can be converted into the amount of water that we may expect in our familiar sized containers.

One cubic inch of water weighs about .036 pounds.

Table 2 shows the amounts of water that can be carried in solution, expressed in pounds and in cubic inches for the quantities listed at various temperatures.

Water Passes Into the Vapor

Propane has another trait that is the fundamental cause of "freeze-ups." It can carry much more water in a pound of vapor than it can in a pound of liquid and when it is in a tank, the water in the liquid leaves the liquid and goes into the vapor space in a direct ratio varying with temperature.

Hachmuth determined these ratios and they were published as in Table 3.

This means that at 40°F there will be 8.3 times as much water in a pound of vapor as there was in the liquid, and at 100°F only 4.2 times as much. As the tank cools, the water has a greater tendency to go into the vapor phase.

With these facts established it should be possible to show how and why "freeze-ups" do and do not occur.

Effect of Seasonal Influences

Picture a typical installation that has been filled in the fall while the atmospheric temperatures are normal. The liquid boils into vapor at say 60°F. The water in solution wants to get into the vapor, and does, and it passes through the regulator with no trouble as the temperatures are high enough to prevent freezing.

As winter approaches the level in the tank has been lowered but the concentration of water is very much less as it has had the tendency to join the vapors similar to the way propane will tend to leave a propane-butane mix and gradually leave mostly butane in the tank when it is nearly empty.

Although the atmospheric temperature has become low, still no trouble is experienced.

A new dump of fuel is made into the tank and a few days later a trouble call comes in. What is the cause?

The fuel was wholly or partly saturated with water. As the tank temperature drops, due to atmos-

TABLE 3

$\frac{\text{Percent Water in the Vapor}}{\text{Percent Water in the Liquid}} = \text{"a"}$

Temperature	"a"
40	8.3
50	7.1
60	6.2
70	5.6
80	5.0
90	4.5
100	4.2

pheric conditions and the vaporization load, the concentration of moisture in the vapor increases.

As the gas passes through the regulator and expands from tank pressure to house line pressure, heat must be supplied for expansion. All gases give off heat on compression and require heat for expansion. (See Fig. 1.)

This heat is drawn from the atmosphere through the regulator body. But to make heat flow, there must be a temperature difference between the medium that contains the heat and the object that is to pick it up.

As a consequence, the regulator body and the regulator orifice and connections, in particular, cool below atmospheric temperature. Depending upon the load, they may cool down to a point that is lower in temperature than the liquid in the tank.

This temperature drop is transmitted into the pigtail connection (see Figs. 2 and 3) and soon it is possible that partial condensation of the vapors from the tank will take place, forming drops of liquid propane ahead of the pressure reducing valve. When this happens the regulator passes some liquid which flashes into vapor as it reaches the low pressure side. But when this occurs the latent heat required to vaporize this liquid must come from the atmosphere through the metal parts of the regulator, tending to further reduce the temperature of the regulator body and the pigtail piping.

Now what happens to our water? In the vapor form, propane can carry about eight times as much at 40° as it can in the liquid form. When the propane vapors are condensed ahead of the regulator inlet

TABLE 2

	32°F		60°F		80°F		100°F	
	lb.	*cu. in.*	*lb.*	*cu. in.*	*lb.*	*cu. in.*	*lb.*	*cu. in.*
100 lb. cylinder	.006	.177	.016	.444	.029	.806	.049	1.36
100 gal. tank	.025	.700	.068	1.90	.123	3.42	.207	5.70
250 " "	.064	1.78	.178	4.95	.306	8.5	.518	14.4
500 " "	.127	3.52	.338	9.4	.613	17.0	1.04	29.0
1,000 " "	.254	7.05	.677	18.8	1.23	34.2	2.07	57.5
5,000 " "	1.27	35.2	3.38	94.0	6.13	170.0	10.36	288
10,000 " "	2.54	70.5	6.77	188.0	12.27	340	20.73	590

(see Fig. 4), the water tends to drop out, and as the temperature of the inlet is low it will freeze to the metal ahead of the orifice. Continue this and eventually the entrance will be so restricted that gas flow is stopped. This is a "freeze-up." (See Fig. 5.)

It is clear why they are caused and it is clear that they could be completely eliminated if there were no water in the fuel when received from the supplier and no water was allowed to contaminate it after received. This is an ideal solution, but from a practical viewpoint all suppliers are not equipped at present to thoroughly dehydrate the products; contamination is possible from tank cars and tank trucks; water has not always been completely removed from new tanks or cylinders, and moisture at times is allowed to get into containers.

Knowing how and why the conditions occur should give us help in reducing their number until eventually such a thing will be history only.

To reduce the chance of liquid accumulating ahead of the regulator, pigtails should be installed so condensed liquid will tend to drain back into the tank.

Regulators should be sized large enough to prevent undue temperature drop at the orifice.

When large loads are anticipated, two-stage pressure reduction with high stage regulators in parallel will reduce the chance of "freezing up."

Inside diameter of pigtails should be large enough to allow for some restriction.

Regulator entrances could be improved to eliminate pockets for accumulation of condensate and ice.

Line dehydrators can be installed but they should be of sufficient capacity to take care of the anticipated water to be handled.

Alcohol injection into tanks will help reduce the freezing point of the water but full-proof material must be used and in quantities great enough to reduce the freezing point of all the water to be passed. Denatured alcohol should not be used, due to possible corrosion effects on regulator parts.

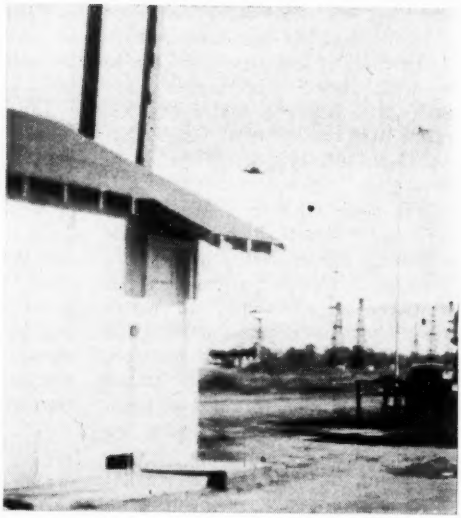
Trouble Varies With Installation

Due to the number of variables as to possible water contamination, sizes of regulators, variation in load, and methods of installation, it is possible for an operator to have trouble on one installation and have practically an identical setup work satisfactorily in the same area.

"Freeze-ups" are not common to all operators. Many have no troubles of this kind due to a completely dehydrated product at source of supply, the selection of the proper size of regulators, care in the installation of regulators, and selection of tank size for the load and weather conditions anticipated.

The reason for the trouble is known. The cure is up to the dealers, the equipment suppliers, the fuel transporters, and the fuel suppliers. Keep moisture away from the regulators and trouble will stop.

Filling plant and retesting station of Imperial Gas Co. at Huntington Beach, Calif.



Keep Your Cylinders Dry

How to Retest; Precautions While Filling; Purging Procedure; Testing After Fillng.

RETESTING and refilling cylinders are the principal business procedures of the Huntington Beach, Calif., plant of the Imperial Gas Co., distributors of "Rockgas" in the West and many foreign countries.

This cylinder station has been established many years and handles thousands of cylinders annually. Most of these cylinders are for Rockgas dealers but other operators are welcome to make use of our facilities.

The principal functions of our plant are to:

Retest cylinders which have been in service.

Purge cylinders of moisture and excessive odors.

Fill cylinders for shipment to distributors.

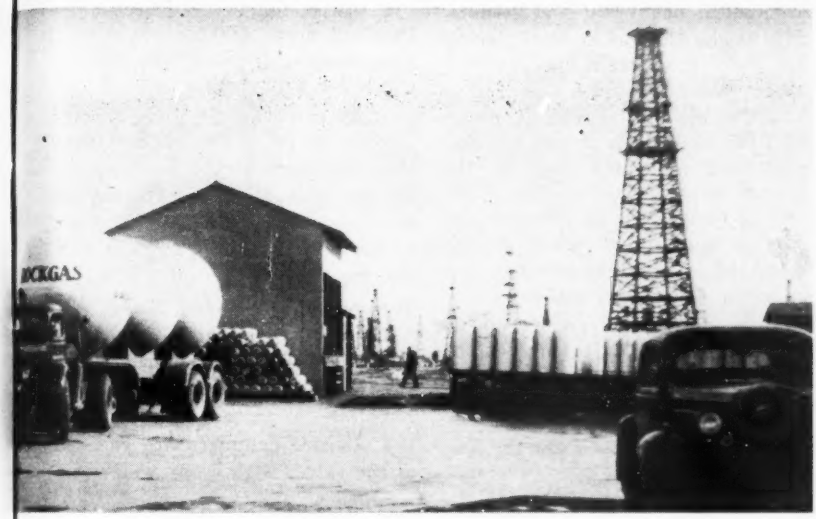
Test cylinders after filling.

ICC Cylinder Testing Procedure

1. The cylinder is checked for the proper markings and specifications.

2. All gas is removed through a vacuum line.

3. We use the water jacket type of testing as specified by the ICC regulations. We are equipped to



By MERVELL L. JENSEN
Superintendent, Huntington Beach Retesting Plant of Imperial Gas Co., Los Angeles

handle cylinders having a net propane capacity up to 210 lbs.

4. Standard thinner No. 350 is forced into the cylinder to determine the total and permanent expansion. The paint thinner is used since it cleans the inside of the tank and also dries out without leaving any trace of moisture.

5. Any cylinder showing a permanent expansion of more than 10% is rejected. However, in our many years of retesting, we have found that practically no ICC cylinders are rejected.

6. A report covering the test results is placed on file for the information of the Interstate Commerce Commission and a copy is also sent to the owner of the tanks.

Safety Precautions During Filling

1. The first step is to check the cylinder specifications to determine what product should be filled and the amount that the cylinder will hold.

2. The valve is checked for defective threads and also as to

CAREFUL CHECKING, testing and purging of cylinders removes the bugaboo of servicemen — the winter-time, regulator freeze-up. Therefore, this article tells how cylinders are handled at a modern retesting plant and supplements the one in this issue entitled, "Regulator Freeze-ups," to be found on Page 41.—Editor.

whether or not it will hold product.

3. When the gas starts entering the valve, the valve is checked with soapy water for leaks.

4. The cylinder is filled ½ pound to 1 pound over its proper capacity and then is vented back to the proper weight. This is done in order to remove excess pressure and air on those tanks which do not have the 10% outage gauge.

Steps in Purging Cylinders

1. Moisture and excessive odorant are removed by taking out the top valve and inserting a suction tube. The cylinder is then washed out with a thinner.

2. All cylinders are checked as they enter the filling plant and if any valve is found to be open a check for moisture is made.

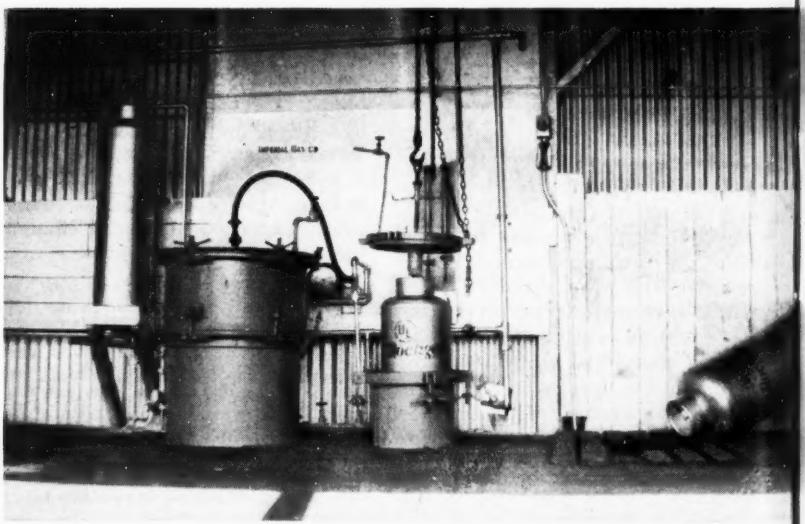
3. All cylinders are given a complete check every two years so that they are kept in good working order. A special mark is placed on the cylinders to indicate whether or not they have been checked during the two-year period

Testing Cylinders After Flling

1. Cylinders up to 100 pound capacity are rolled through a water vat. If any gas is leaking it blows bubbles.

2. Larger cylinders are checked at the valves with soapy water and a brush.

This work is done at our Hunt-



Testing ICC cylinders by the water jacket method.

Sterling Parr, who has directed testing operations at Imperial's plant for many years.

ington Beach plant under my direction. Sterling Parr is in charge of all retesting work. Deno Nelson is in charge of the filling operation and is assisted in the work by Louis Pimlott and Joe Friedrick. Credit goes to the splendid cooperation of Imperial dealers and their servicemen who make a special effort to see that all valves on the cylinders are closed when the tanks are not in use, thereby helping us to maintain our goal of safety first and perfect service.

When cases are found on consumer premises where water may have entered the cylinder, the introduction of approximately 1 pint of alcohol for each 100 gallons of fuel serves to offset the moisture. If a large amount of water has been allowed to enter the cylinder you can use up to 3 pints of alcohol per 100 gallons of fuel. The Bastian-Blessing Co. has an alcohol injector (No. 3117) which is available for the purpose of introducing alcohol into the cylinders.

•

Recently H. A. Campbell, chief inspector of the Bureau of Explosives, publisher of the tariff covering the testing of LP-Gas cylinders, wrote this letter to a member of our industry to show what the ICC requires in a testing procedure.—Editor.

"In reply to your letter concerning prescribed retests for ICC cylinders used for the shipment of liquefied petroleum gas, I would advise that these requirements will be found in the Interstate Commerce Commission Regulations beginning at sec. 303 (p) (13) (a).

"In brief, cylinders of the ICC-4B and ICC-26-300 types, used exclusively in liquefied petroleum gas service and protected externally by suitable corrosion resisting coatings, may be retested decennially, at which time total and permanent expansions and ratios thereof must be determined. As an alternative, these types of cylinders may be tested quinquennially by subjecting them to an internal hydro-pressure, without determination of expansions, and when so tested the test date must be applied to the cylinder followed by the letter S denoting modified method.

"All cylinders must be carefully examined under test pressure for defects and must be rejected if evidence of bad dents, corroded areas, a leak or other conditions indicate possible weakness, rendering the cylinder unfit for service.

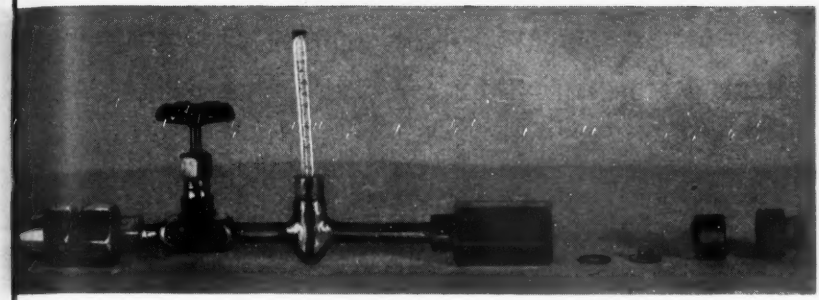
"For further information, if you have not already a copy, I would suggest that you obtain my Tariff No. 4, which contains ICC Regulations and Shipping Container Specifications. I should be glad to forward you a copy, with effective supplements, upon receipt of your check for $2.50, made payable to the Association of American Railroads."

Building Soil Fertility with Anhydrous Ammonia

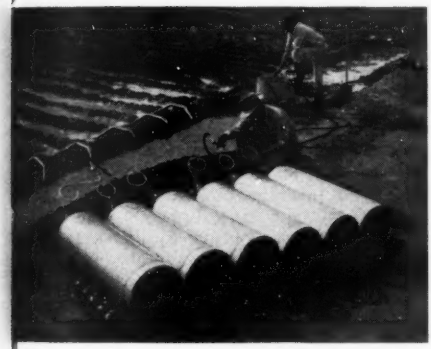
AT TOP:
Results of fertilizing with agricultural ammonia. Barley stalk on left was taken from area to which was applied 60 lbs. per acre of Nitrojection ammonia. Stalk on right is from untreated area.

LEFT ABOVE:
With this equipment sufficient Nitrojection ammonia is contained in bulk in a single cylinder to fertilize 45 acres of land.

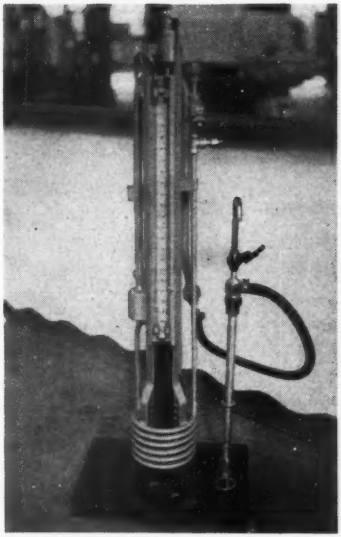
LEFT BELOW:
Three-cylinder trailer injector for application of Nitrojection ammonia. Ammonia, tenaciously held by soil, is absorbed by plant roots or converted by bacteria to nitrate nitrogen.



This modern valve and orifice assembly meters Shell Nitrogation ammonia by means of interchangeable orifice units of varying diameters.



Anhydrous ammonia being applied directly into irrigation water. This process, called nitrogation, was developed by Shell Chemical and put into commercial use more than 10 years ago.



One of the early types of metering equipment used in applying Nitrogation ammonia to irrigation water.

EXPLANATORY

These pictures and captions are made available through L. M. Roberts, manager-engineering, Shell Chemical Corp., San Francisco, and illustrate the subject matter of a paper upon the subject of anhydrous ammonia delivered by Mr. Roberts at the June LPGA convention in Sacramento and digested in the August issue of Butane-Propane News (Page 176).

Rapid Thermogas Expands In Wisconsin

By ESTHER KUEHL

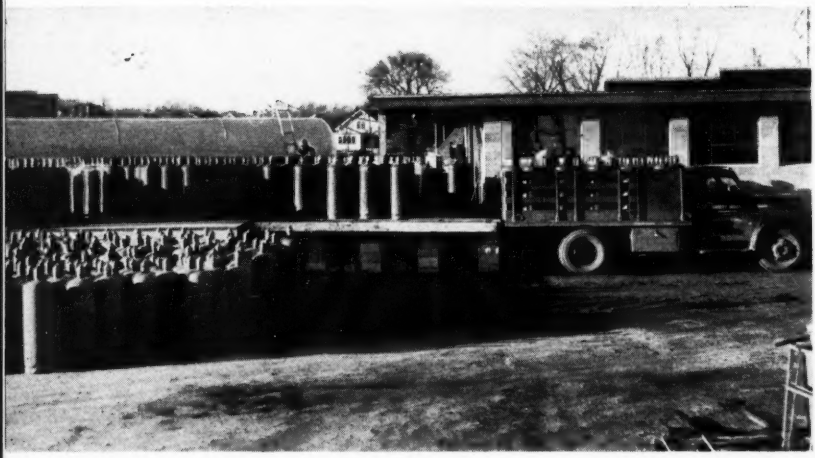
THE rapidly expanding business of the Rapid Thermogas Co., Waukesha, Wis., has necessitated the adding of approximately 2000 feet to its present concrete block "filling house." The additional area and dock space will facilitate the handling of the 275,000 pounds of liquefied petroleum gas sold monthly.

William S. Brenckle, manager of the Rapid Thermogas Co. bulk plant in Waukesha, began operations at his present location in 1946 with two new buildings under the name of Natural Gas, Inc. In 1947 he merged with the newly formed Rapid Thermogas Co., of Iowa, Wisconsin, and Illinois, which serves close to a million homes through its 750 dealers.

The company has a storage tank 65 feet long with a capacity of 18,000 gallons. According to Mr. Brenckle, this is refilled each week.

In addition to the wholesale and retail "bottled gas" business, the Waukesha Rapid Thermogas Co. has a complete line of ranges, refrigerators, space heaters and water heaters. Mr. Brenckle states he will soon need larger quarters to keep pace with his growing business.

Rapid Thermogas filling plant.



E. A. LaPolice Opens Gas Plant in Windom, Minn.

E. A. LaPolice, formerly located in Marshall, Minn., has established an LP-Gas business in Windom, Minn.

Facilities of his plant include a 30,000-gal. storage tank and a cylinder filling plant. He operates a 1200-gal. tank truck and is equipped to sell engine fuel to butane-burning trucks and tractors.

LP-Gas Dealer Operation Not a Public Utility, Rules Public Service Commission of Indiana

THAT the services rendered by a liquefied petroleum gas dealer are not comparable to those of a public utility was definitely determined in December by the Public Service Commission of Indiana in a decision that should have wide influence upon similar public officials when attempts are made in any given state to regulate butane-propane operations in a manner similar to laws governing public utilities.

The Indiana commission's ruling stated that LP-Gas is sold in liquid form as a packaged commodity, even though utilized by householders as a gas; that, in substance, there is no more reason for a state to control its distribution on a utility basis than there is to regulate the sale of oil, coal, wood, kerosene, or gasoline in like manner.

Should Interest Other States

Because public service commissions are frequently petitioned to put LP-Gas distributors in a class with corporations holding exclusive franchises to serve gas through underground mains, and obligated to serve every householder who asks for an installation on their lines, the important clauses of the Indiana decision are printed below. The butane-propane industry may have need to cite the ruling to other commissions in other states.

"On July 9, 1948, Henry Oatman, an individual doing business under the name and style of Oatman Bottle Gas Co., filed a verified petition with the Commission docketed as Cause No. 20728 wherein it prayed that the Commission (1) determine whether or not it had jurisdiction over the business being conducted by Petitioner and (2) if it determined that it did have such jurisdiction, to issue to Petitioner a certificate of convenience and necessity authorizing Petitioner to distribute bottled gas direct to consumers in territory described in said petition.....

"At said hearing Arthur C. Kreutzer, Counsel for the Liquefied Petroleum Gas Association of Chicago, Ill., asked leave to intervene and be heard in this matter. There being no objection, Mr. Kreutzer was allowed to appear in said proceeding and submit a written statement for the record...

"The Commission finds from the evidence that Petitioner is an individual owning and operating a bottled gas distribution service in rural areas in the southern part of Indiana, doing business under the name and style of Oatman Bottled Gas Co.; that Petitioner has been engaged in the distribution and sale of bottled gas and appliances in said territory since 1938 and owns and operates property consisting of bulk plants, storage tanks or bottles and necessary motor vehicle equipment for the distribution of bottled gas located at Nebraska and

Versailles, Indiana, distributing and selling bottled gas in Ripley, Jennings, Switzerland, Ohio, Scott, Jackson, Jefferson, Batholomew, Dearborn and Franklin Counties, Indiana.

"The evidence further shows that Petitioner in the conduct of his business, leases storage bottles or tanks to individual customers for installation on their private premises and in a few instances installs bulk tanks with a capacity sufficient to supply several customers, all of Petitioner's installations being on the private property of Petitioner's customers.

"To determine the question of jurisdiction this Commission must necessarily take into consideration the nature of the commodity being sold by Petitioner, the manner of distribution and the relationship between Petitioner and his customers.

"Petitioner in the conduct of its business installs tanks at individual residences which are periodically filled with liquefied propane. This propane is then vaporized by releasing from under pressure, becoming a gas and passing to burner tips through the facilities and transmission mains of the owners of the premises. Propane, for the purpose of facility in transportation, storage and handling, is held in a liquefied state until ready for use and is sold by Petitioner as a liquid and is converted into gas after sale and delivery by Petitioner. When sold and delivered by Petitioner it is a packaged commodity.

"For this Commission to determine under the provisions of the Utility Act that it has jurisdiction over the sale of this type of commodity merely because the ultimate use of such a commodity is for the generation of heat or light, would necessarily mean that the Commission would also have to assume jurisdiction over the sale of oil, coal, wood, kerosene, gasoline and all products or commodities used or usable for the generation of heat or light. Certainly the General Assembly in enacting the Utility Act as amended did not contemplate and could not have contemplated any such a broad interpretation. There is a distinct difference between the operation of a public utility engaged in the sale and distribution of electricity, gas, water or the rendition of telephone service and that of one engaged in the distribution and sale of bottled gas.

The Two Fields Compared

"Necessarily, the service rendered by a public utility is so dedicated to the public that it becomes affected with the public interest. There is an offer to sell to and serve the public generally, the right of use of public property and condemnation of private property. Such is not the case in the sale of bottled gas which is a merchandising business. Each sale is an independent sale and transaction between the seller and the individual customer. The seller does not hold himself out nor is he expected to sell to the public generally but on the contrary sells his commodity to selected customers under written contracts under various brand trade names.

"Another differentiating factor is that in the sale of bottled gas the seller is in fact selling a product which is subject to and is packaged, while in the case of a public utility, the utility is selling primarily a service and supplying a commodity which is not tangible in the sense that it can be packaged and parcelled.

"The Commission therefore finds it has no jurisdiction over the sale and distribution of those commodities commonly known as and referred to as bottled gas and the petition should be dismissed and it will be so ordered."

Flame Cutting With Propane Precision Work in Quantity Production

By FRED M. BURT

A TYPICAL example of the degree to which many of our manufacturing techniques have been improved by wartime experiences is that of machine flame cutting with propane gas as it is done by the Western Steel Cutting, Inc., Los Angeles.

Due to this company's inability to procure enough standard flame cutting machines when the pressure of war work taxed its facilities to the utmost, M. Pearlman and M. Krohn, owners of the company, used certain parts that were available and designed and constructed their own machines. They thus ended up with nine special camograph and circle cutting units. These are supplemented by five standard radiograph units. (See Photo 1.)

To determine just what products or parts can be formed more efficiently and economically by flame cutting than, for instance, by machining or casting, requires genuine sales engineering as has been found out by M. Pearlman. But by careful analysis and from comparable experiences, a positive determination can be made. The following typical examples will illustrate to some degree how this can be done.

Hardness No Handicap

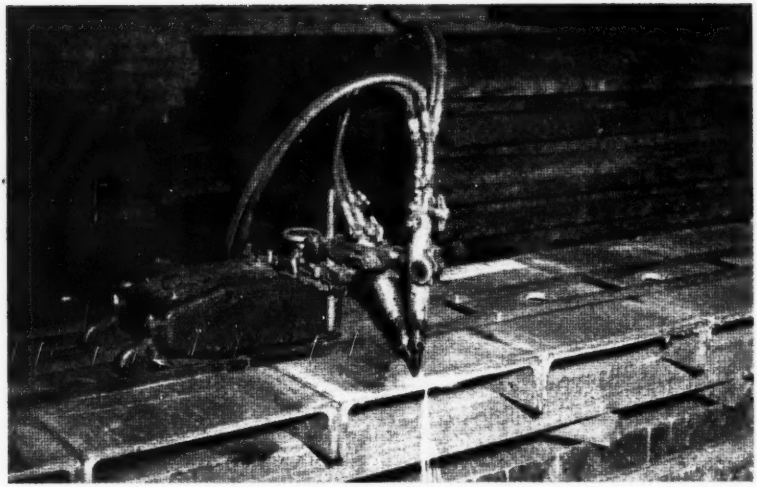
Most of the cutting is done down to diminsional tolerances of plus or minus 1/64 inch (.0155 in.), often when such precision is not required. This applies not only to thin cuts, but to cuts of several inches thick and to stack-cutting. Many jobs are done with tolerances only a few thousandths of an inch, and in fast quantity production.

These tolerances apply not only to simple dimensions, but also to relative dimensions and curvatures in the same or different planes. Cuts up to 12 inches thick are common, although this is by no means the thickness limit.

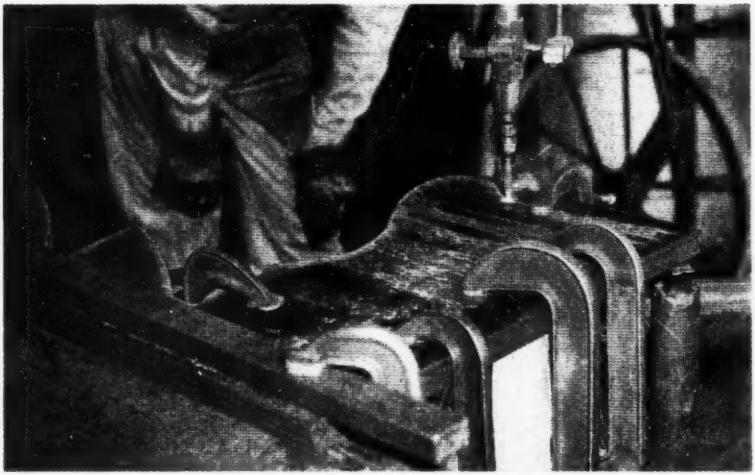
Most of the cutting is done in mild steel but this is only because so many more products are made of mild steel. Many steel alloys of both high and low carbon content (such as chrome-molybdenum and chrome vanadium), are cut with as much ease as mild steel.

The principal reason propane is used instead of other fuels is because it permits making exceptionally clean cuts on precision jobs, avoiding slag to hold dimensions.

One quantity production job in process at this writing suggests the beating (cutting) of swords into plowshares angle. Not exactly swords, perhaps, but one of its modern counterparts. Eleven-gage

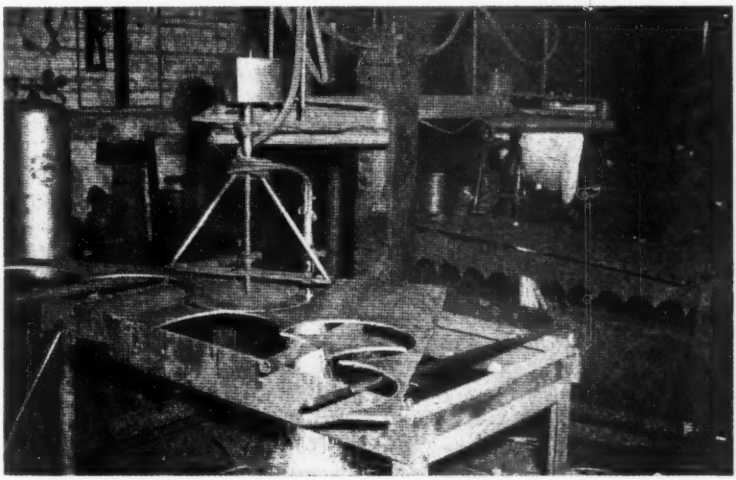


1. Radiograph, a portable, straight-line flamecutting machine beveling a long row of 18 in. channels.



2. Stack-cutting ten plowshares from 11-gage mild steel.

3. Making outside cut on a plate for hydraulic hoist. Note the double pattern that guides the electro magnetized contact roller for both inside and outside cuts, at the top of the picture.



4. Cutting perfect circles with two machines supported from a common center column 17¾ in. diameter plate cut from ¾ in. steel in 2½ minutes.

TABLE 1. MACHINE FLAME CUTTING MILD STEEL—¼ to 12 In.

Thickness of Steel-Inches	*Cutting Speed Inches per Min.*	*Approx. Width of Kerf Inches*
¼	20-28	.050—.075
½	17-24	.065—.095
¾	15-22	.075—.095
1	14-19	.075—.110
1½	12-15	.085—.130
2	10-14	.105—.130
3	8-11	.120—.165
4	6.5-9	.135—.165
6	4.5-6.5	.135—.190
12	2.4-3.5	.260—

Other thicknesses in proportion.

plate, bought from the War Assets Corp. and originally destined for use in tanks or other death dealing units, is being stack cut, 10 at a time, into plowshares. (See Photo 2.) The contour of the single outside plowshare cut is about 56 in. long and takes about 8 minutes.

The precision travel of the cutting-torch is guided by a pattern, made of steel plate, above and carried by a framework that is adjustable for position and supported by a heavy vertical steel post. The standard Western Steel pattern and driving mechanism setup is illustrated in Photo 3, although the pattern shown in this picture guides the torch for inside and outside cuts.

Magnet Guides Torch

The inside cut is made first to prevent warpage. An electro-magnetized contact roller projects upwards from the variable speed motor which drives it, and, due to the magnetism, hugs and follows the contours of the pattern, thus guiding the torch in its precision cut.

The speeds of cuts and the widths of the kerfs* fall within the limits shown in Table 1. The exact speeds are determined by the operators, who are well trained and widely experienced. They can determine from the appearances of the cuts whether the speed and pressure adjustments are exactly proper.

Tips used range from No. 000 for the thinnest cuts up to No. 12 for the very thick ones. In general, oxygen pressures range from 40 to 45 lb. on cuts up to 3 inches thick, and from 45 to 85 lb. on cuts up to 12 inches.

Propane or butane gas is used with the oxygen at pressures from 3 to 15 lb. They are used in place of acetylene gas for the reason that the latter has more of a hardening effect on the surfaces that are heated. Although the propane or bu-

* Kerf is the width of the cut; the space that had been occupied by the metal burned away.

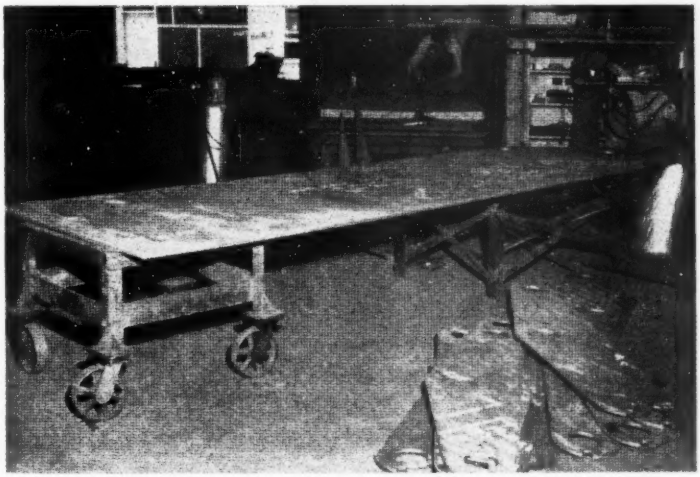
tane flame is not as hot as the acetylene, and requires slightly longer in preheating the metal to be cut, after it is once started little difference is seen in the subsequent cutting as to speed and effectiveness.

The specially designed machines used in circle cutting are absolutely accurate in their maintenance of a perfect circular cut. A round sheet steel pattern with a small hole in its exact center is used to make layouts on the plate in which the circles are to be cut. Center holes are punched in the plate through the center hole of the pattern, and the sharp point on the end of the vertical positioning rod is placed in this punched indentation. (See Photo 4.) The cutting tip is positioned on its triangular supporting framework at the proper radius distance from the center, allowing for the kerf.

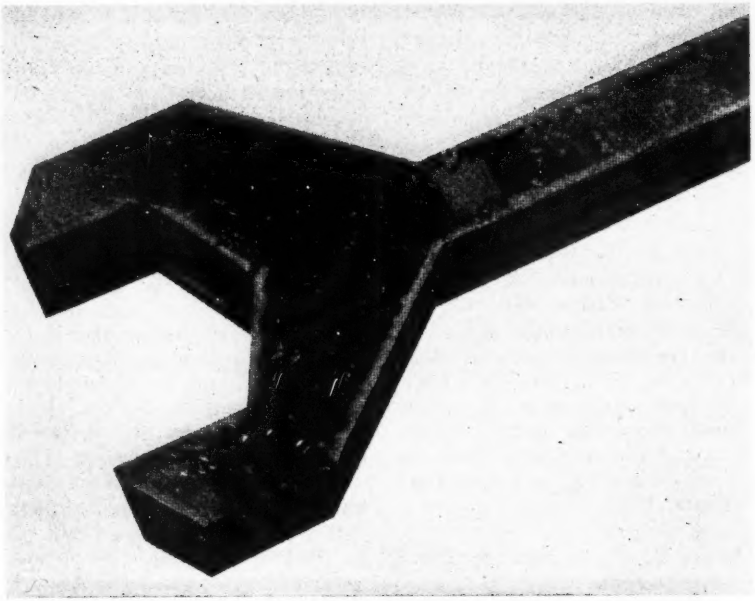
Pattern Making is First Step

When the cutting flame moves in its circular travel, driven by the motor above at the speed indicated, this exact radius is maintained. Without this center positioning on the plate itself, when the metal "walked" (outward expansion from heat applied) the result would be an imperfect circle.

When a cutting order is placed with the company, the first thing done is to make a pattern following the dimensions specified. Dy-



Complete setup and operation in cutting heavy part for earthmoving equipment (used in sets of four requiring close precision in cutting).



Wrench for large plastic forming press flame-cut from 4 in. plate, 10-20 H.R. mild steel, 20 in. long and 9½ in. wide, it was cut at a speed of about 7 in. per minute.

ken steel blue coating for laying out template is brushed on a proper-sized piece of thin sheet steel. An accurate outline of the cuts to be made is scribed on this coating and then the extra metal is trimmed off to leave the proper outline.

This pattern is mounted on one of the machines to guide the flame cutting of the working pattern from a heavier gage of steel. The contact roller travels around the outer edge of the first pattern, making a cut in the other sheet to form the inside contour that will later guide the roller in production work.

Precision Control

Allowance for the narrow kerfs and absolute accuracy in all cuts is provided by using contact rollers of indicated size, plus the use of caps when required. The contact rollers are in graduated sizes, with ⅛- and ¼-in. diameters most frequently used. Caps made to fit these rollers are of many thicknesses and can be used to make variations in cuts down to a ten-thousandth of an inch.

Kansas Dealer Cashes in On Wartime Back Log of Orders

By O. D. HALL

SANTA CLAUS took his stand along the highways near Salina, Kan., and greeted travelers and local farmers with appealingly displayed bargains in LP-Gas appliances.

The triangular headquarters showroom of G. M. McClellan Propane Gas Service facing U. S. Highways 40 and 81, was attractively stocked with "Magic Chef" LP-Gas ranges bearing a special Christmas inducement message; also, with a pleasing variety of other LP-Gas appliances, including refrigerators, water heaters and space heaters. An appropriately decorated Christmas tree stood in one of the show windows to lend a seasonal glow for the benefit of passers-by and visitors to the store.

The special display was backed up by large advertising display space in the Salina Daily Journal each Monday afternoon during the Yuletide season.

While building up a sizeable backlog of unfilled orders during World War II, Mr. McClellan planned to be ready to properly serve his customers with appliances when they once became avail-

G. M. McClellan Propane Gas Service bulk storage, transfer and bottling plant at Concordia.

G. M. McClellan Propane Gas Service headquarters building and highway filling station for trucks, cars and bottles at Salina, Kan.

able. He leased a building which had been constructed to meet his requirements, located near the point where the two federal highways converge and not far from the business center of Salina. It has 2000 square feet of floor space, and room not only to accommodate his showroom with display windows facing the highways but also his headquarters offices, service shop and storage rooms.

While some expressed uncertainty about the value of a long list of backlog orders, comparatively easy to acquire during the war when LP-Gas merchandise was hard to get, Mr. McClellan took his list seriously and made every effort to fill each order at the earliest possible date and in proper turn. He kept this list alive by notifying each prospective customer at regular intervals as to what the merchandising situation was at the particular date and as to about when he would be in a position to fill the order. Instead of funneling the appliances or equipment out to someone who might be more insistent or offer a better price, he notified the people on his waiting lists in their order and delivered and installed the appliances or equipment as shipments were received. He also kept the people of Salina and vicinity advised by newspaper and radio advertising as to the general merchandising situation.

As a result of this policy Mr. McClellan says that more than 90% of those on his backlog list have purchased the merchandise they ordered from him. He reports, also, that he is nearing the point where he can fill all orders as giv-

en, and then his merchandising operations will be normal.

Having the return of normal business conditions in mind, with a steadily increasing demand for LP-Gas service, Mr. McClellan, in March 1947, installed an 18,000-gallon propane gas storage tank, bottling plant and two delivery trucks at Concordia, Kan., about 60 miles north of Salina. He also has an appliance store there.

Has Good Load Balance

All around Salina and Concordia the firm has dotted the farmsteads with 500- and 1000-gallon propane storage tanks. With these, and a program of keeping them filled before winter sets in, he has solved most fuel shortage problems for his customers. He has worried less about balancing the winter and summer loads and has concentrated on maintaining in his storage tanks and those of his customers an adequate supply of propane, contracted for at the Warren and Cities Service refineries well in advance of needs.

Supplying the propane for pumping a few oil wells near Salina, each using from 3000 to 3500 gallons a year, selling propane to about 20 farmers who operate tractors and to a collection of commercial customers in Salina and Concordia materially help to build his summer load.

In front of the building and beside the highways he has installed a propane gas service filling station. Not far away, along the Santa Fe Railway tracks, are his adequate bulk storage and bottling facilities, capable of storing 18,000 gallons of propane and transferring gas shipped in on the railroad in tank cars.

The roadside service station located in front of his headquarters building at 915 Broadway, includes a propane transfer pump, installed by Corken's Inc., of Oklahoma City, a 1000-gallon propane supply tank and an adequate piping system for filling fuel tanks of tractors, trucks and automobiles operated on propane. The highway filling station operates regularly from 8 a.m. to 5 p.m. daily and for special service at night.

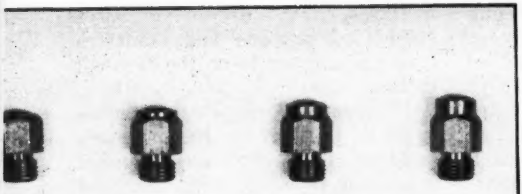
Owing to his progressive methods and careful attention to the needs of his customers, Mr. McClellan has increased his wartime sales of around one-half million gallons of propane in 1945 to a total of about one-and-one-half million gallons in 1948.

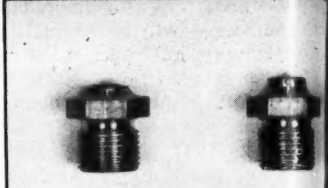
He is active in the work of the Kansas LP-Gas Association and at present is a member of the board of directors of that organization.

Richmond, Va., Firm Given Permit to Sell LP-Gas

The Henrico Gas Service Corp., of Richmond, Va., dealers in liquefied gases, has been issued a charter by the State Corporation Commission. Officers are John W. Riely, president; H. Merrill Pasco, vice president, and B. Warwick Davenport, secretary-treasurer.

Maximum capitalization was limited to 800 shares of cumulative preferred stock valued at $10 a share and 200 shares of common stock also valued at $10 a share.





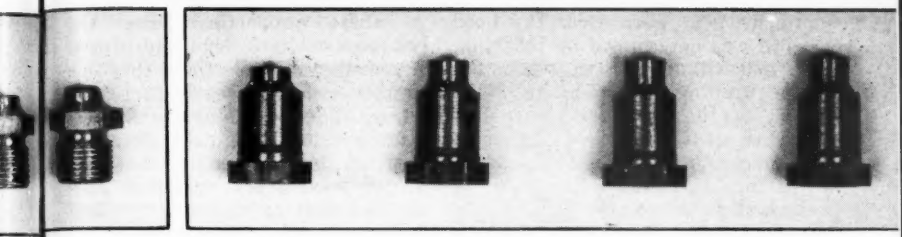
Velocity Reducing Ho
For Controlling Pri

By P. A. RAY

ANY utility serving butane- or propane-air gases has experienced difficulty with the ability of these gases to inspirate excess primary air. Frequently the use of putty, or furnace cements has been required to close the openings, allowing the entrance of primary air to a sufficient extent to provide proper burner operation. This particular problem is experienced in most all of the heating valves of these gases up to and in some cases including the interchangeable gases for natural gas.

The change from any manufactured gas to the use of butane or propane-air gas has always resulted in a problem as to what method should be used to control the primary air inspiration and at the same time prevent excessive future service problems due to the closure of primary air openings with grease and dust. Several devices have been developed to reduce the primary air inspirated by these gases and to allow a reasonable opening of the primary air shutters. The extended orifice, the pressure reducing orifice, the angle orifice, and the velocity reducing hood orifice comprise a few of these devices. This article is concerned primarily with the use of the velocity reducing hood orifice, as the author's experience has been entirely with this type of primary air control device.

The United Cities Utilities Co. and subsidiaries has operated 17 gas properties since 1932, most of which serve butane- or propane-air gases. Originally these properties all operated with butane-air from 500 to 550 Btu heat content. Several of them have been converted in late years to the service of 1000 and 1300 Btu content gas. Through constant research and experience in the utilization of butane-air gases and most particularly with the change from lower heating values



Hood Orifices Primary Air

to higher heating values, the fundamentals involved in the use of velocity reducing hood orifices have been well developed.

After a study of the functions and various features of the sundry devices available for the control of primary air, the velocity reducing hood orifice was selected as the one that it was felt would best meet the needs of this company. It seemed that this particular type of orifice would prevent excess service difficulties and would probably provide the maximum customer satisfaction. There was less chance that customer tampering and ineffective adjustment would give cause to such difficulties. With the proper hood selected for a particular orifice and burner, there seemed to be no particular way whereby the control of primary air inspiration, insofar as the orifice effected such control, would in any manner be accidentally changed in the future. It is the author's belief that many of the difficulties experienced in the utilization of butane- and propane-air gases with velocity reducing hood orifices have been the result of improper selection of the correct hood for a particular gas and burner.

The testing of a multitude of burners with the use of velocity reducing hood orifices in which each burner was tested with hoods of varying sizes and depths, revealed that the tolerance in the depth of a hood for a particular burner was much more critical than had been realized in the past. In these tests involved with gases with heat contents of 535 Btu, 1000 Btu and 1300 Btu, we found that a variation of 1/32 in. in hood depth, away from that particular depth suitable for a given burner, would invariably result in difficulties in obtaining proper burner operation.

In explaining these tests and the subsequent standards used in providing velocity reducing hood orifices, the following methods of

Three sizes of velocity reducing hood orifices, showing varying depth graduated in steps of 1/32 in. The orifices, designed for use with butane-air gas of 1300 Btu value, are manufactured by Anderson & Forrester as types 6-V, 11-V, and 1-V.

measurement were used. The hood depth was determined by inserting a twist drill of the same size as the hood opening to the limit of the hood depth. This drill was then marked at the edge of the hood. The measurement of the hood depth was then taken from the point of the drill to this mark. This seemed to be the best possible method of measuring hood depths and providing specifications to suppliers to assure that all hoods as provided would be to the correct depth.

Special Hood Depths Required

The first tests of burners to determine proper hood depths and sizes were made with 1300-Btu butane-air gas to establish the requirements in changing from the lower to the higher Btu value. The material and precision used in these changeovers were much more exacting than those generally used. In the case of 1300-Btu gas it was found that hood depths would be required varying from 3/32 in. to 7/32 in. inclusive in steps of 1/32 in. The velocity reducing hood orifices provided in these changeovers, which involved over 6000 meters, were obtained from a supplier in all of the hood depths noted above, accurately machined to our specifications. This supplier normally manufactures velocity reducing hood orifices with hood depths materially greater than those we required. These orifices were modified by the supplier to our specifications by machine cutting the hood to the proper depth.

The actual experience in these changeovers, covering a period of two years and the results obtained in these properties since the changeover, have definitely proved the value of selecting the one proper orifice for each particular burner. The men doing the changeover work in the field were instructed to be certain that the proper hood depth was used even to the extent of replacing the first hood depth tried with a burner until the proper depth was found. Wherever possible the hood depth was used which would provide proper burner operation with the primary air shutter open approximately 50%.

The success of these precise requirements is proved by the fact that the post-changeover difficulties which are normally experienced were in the case of these particular changeovers considerably less than have ever been experienced by the author previously. Most of the difficulties following the changeover work were the result of those few burners so poorly designed that the field man had been unable in the pressure of his work to find any orifice that would provide good burner operation.

Following the tests and experience with the high heating value gas, similar tests were made to determine the correct hood depths for low heating value gases in the range of 500 to 550 Btu. From these tests it was determined that the range of hood depths was from 9/32 in. to 14/32 in. inclusive. As a result of this work, correct hood depths within this range, again in steps of 1/32 in., have been provided for use in those towns serving a low heating value gas.

Previously it had been attempted

by the service departments in these towns to achieve reasonably proper burner operation by filing and sawing off the hoods to an approximation of the correct depth. Very rarely was the proper depth achieved by this haphazard method and frequently additional troubles developed due to the rough edges left on the hood opening and to the fact that the opening was rarely square with the orifice body. The experience resulting from the provision of accurately machined hoods is proving to be as valuable as that obtained in the change to the higher heating value gas.

Subsequent tests have been made with gases varying in heat content in the 1000-Btu range in which it was found that the hood depths required were in direct relation to the heating value of the gas; that is, the proper depths ranged from 5/32 to 10/32 in. As a result of the tests and experience, a simple graph has been prepared which may be used in selecting the range of hood depths for any heating value of butane-air and propane-air gases. This graph may be used to determine the hood depths required in steps of 1/32 in. in making a change to any heating value of this type of gas, or in the routine adjustment of appliances in a property already utilizing this type of gas.

Easier Reading for Servicemen

The base of the graph is tabulated in terms of the heating value of the gas. The left-hand margin of the graph has been tabulated in 32nds of an inch. In all cases the number of 32nds is used rather than

P. A. RAY

EXTENSIVE EXPERIMENTATION by the author and his company in the use of velocity reducing hood orifices to control primary air inspiration provided the data for this article by Mr. Ray, who was recently promoted to the position of chief engineer of United Cities Utilities Co., operator of 17 Midwest gas properties. Mr. Ray is also local manager of the Hastings (Minn.) Gas Co., one of the subsidiaries of United Cities.

such terms as 1/16ths in place of 2/32nds or 1/8 in place of 4/32nds. This will provide servicemen with a numerical order within the particular range of hood depths required for their gas. Thus in the case of a gas with a heating value of 1300 Btu the range would be from 3 through 7 inclusive, and the servicemen need only remember the numerical order of 3, 4, 5, etc. The two lines on the graph define the limits or range required for any particular gas. As an example, a propane-air gas with a heating value of 800 Btu requires hood depths from 7/32 to 12/32 in. inclusive.

Tests indicated that the diameter of the hood opening had a definite effect upon the primary inspiration of a given burner. However, it was found that the provision of hood depths in steps of 1/32 in. would provide essential primary air control for a major portion of the burners with the diameter of the hood opening remaining constant. This eliminated a second variable

which would have, in field service work, resulted in considerable extra effort. The size of hood opening used in our properties is No. 11 wire drill size.

The research efforts of the AGA Testing Laboratories have indicated that the distance from the end of the orifice (velocity reducing hood in this case) and the venturi throat would to some degree affect the primary air inspiration of a given burner. Our tests with velocity reducing hoods in the range of hood depths required for a particular gas have shown that the variation in the distance from the hood to the venturi throat, resulting from a change in hood depth, is so small that there is no appreciable effect on primary air inspiration. This item is of importance as it has been proved essential to maintain a uniform length of orifice channel. Any material change in the length of the orifice channel will materially affect the primary air inspiration of a given burner, and in our experience frequently will tend to provide a poor gas-air mixture in the burner head whenever this channel exceeded the normal. It is thus indicated that a velocity reducing hood orifice should be first machined to the essential dimensions of that particular orifice to the full hood depth as normally provided by a particular supplier and then the hood subsequently machined to the proper depth. Although this will result in extra expense, such additional expense is more than repaid by the benefits derived therefrom.

Our experience with the use of velocity reducing hoods, both with low and high heating value gases, has shown that, although a supply must be provided of all the hood depths by 32nds of an inch within a particular range, the majority of the burners will require one or two principal hood depths within that range. Most burners will divide into two classes for this purpose.

Two Classes of Burners

One class consists of those burners of older vintage such as star type top burners, hot plate burners, and tank water heater burners. The other class consists of modern range, water heater and most of the other burners which have been designed under the more accurate formulas presently available. Another definition of these two classes might be in one case burners that were designed for gases served years ago which was usually manufactured gas, and in the other case burners which have been designed in late years which tend to approach a universal application.

The older burners in the one class will invariably require the maximum hood depth in the range involved for a particular gas. The newer burners in the other class will in most cases require a hood depth 1/32 in. greater than the minimum hood depth within the range for that gas. This may be illustrated in the case of 1300-Btu gas. Most old appliances required hood depths of 7/32 in. which you will note is the top of the range for this particular gas. The newer appliances usually required a hood depth of 4/32 in.

Following these rules it is possible to plan coherently on the quantity of orifices required for a

given task such as a changeover. Knowledge of the particular property involved will indicate the ratio of older to newer appliances. Orifices of the two hood depths required for these two classes may then be obtained to fill the requirements of the majority of the burners. Smaller quantities of the other hood depths within the range may be provided to fit the small number of burners that failed to fall within the two general classes.

Old Burners Vary Greatly

Although the use of velocity reducing hoods will be successful in most cases, there are always those odd burners with which no hood or other primary air control device will work successfully. It is not possible in this article to develop the necessary steps to provide proper operation of these burners. As a matter of fact, there are hardly two such special cases exactly alike, resulting in the need for special treatment in each case. For this reason, it is necessary to provide a supply of common orifices without velocity reducing hoods when a changeover job is contemplated. In addition, we have found it best to provide a small quantity of the plain orifices for our routine service work.

In this article, reference has been made to the changeover of a number of the company's properties to a higher heating value of gas. The author would refer you to an article published in the September 1947 issue of *GAS* developing the exact port requirements in these same changeover efforts. Our experience with the utilization of butane- and propane-air gases and in particular that gas with a heating value of 1300 Btu has proved beyond doubt that the principle of providing proper ports and proper orifices for these gases will more than repay the added expense.

Helpful Hints for Burner Adjustments

The Kentucky Liquefied Petroleum Gas Assn., in a recent bulletin to its members, published some brief suggestions on burner adjustments which should be helpful to servicemen in the field. They follow:

When the flame on a top or oven burner floats after a stove has been in operation for 15 or 20 minutes, it is the result of a poorly ventilated kitchen. Vent the oven flue or open a window slightly to ventilate the room.

When it is impossible to get a blue flame on a burner, check the following:

Orifice Size Is Important

See that orifice is proper size and drilled straight. Make sure orifice is in line with burner mixing tube. Clean burner mixing tube of grease and lint and open any clogged ports.

Burners should be adjusted when they are cold so as to have a blue flame. If burners are adjusted sharply when hot, the flame blows from the burner when the burner is cold. If burner is hot, adjust to a soft flame.

When there is condensation on the front of a stove it is caused by the cold air in the kitchen. To eliminate this difficulty, advise customer to allow oven door to remain open for a minute after lighting.

What Counts?

Not What Electric Industry Claims, But What Gas Can Actually Do.

By LEE A. BRAND
Vice President, Empire Stove Co.
Belleville, Ill.

In an address given last fall, Lee A. Brand, vice president of the Empire Stove Co., Belleville, Ill., took as his topic "Gas versus Electricity," and lashed out at the propaganda which electrical interests are spreading throughout the country.

He takes apart a course on selling electric cooking and water heating which is now being given by a nationally known extension university, and covers the subjects of "cooking-soilage," safety, and relative efficiencies. Here are excerpts from his speech:

The electric industry, in building its story against you, gave it considerable study . . . far more than you imagine. They have done their job so well that even the government, wittingly or unwittingly, is supporting their cause through the instigating and subsidizing of REA. TVA, Boulder Dam and the proposed new government-paid-for projects to produce electricity are all-important factors in this over-all picture. Add to this the in-process-of-construction or proposed privately financed projects to produce electricity, and imagine the surplus power available for sale when all these projects are finished. The logical place to sell it is to your present and prospective customers.

Energetic campaigns are now being waged throughout the entire country in which they, the electric men, are definitely trying in every way to discredit LP-Gas.

Do you know that the electric boys have written a course which is being taught by an extension university, covering the sale of electric cooking and water heating. Let us review some of the things they say about gas.

As we review the supposedly bad things the electric boys have to say about us, we will, at the same time, with simple demonstrations, prove to you how wrong they are and how much they distort the truth.

In this course they say: "Flame type heat is a general term used to describe the generation of heat by burning any common fuel in the open air. A simple example of flame type heat is a burning match. It gives off heat, and if you burned enough matches you could cook a meal with them, just as you could with a camp-fire. However, in addition to giving off heat, burning wood also gives off light and the typical by-products of flame-type combustion, such as carbon, grease or tar, water and noxious gases. By holding a burning match beneath a clean utensil or china cup, you may see these particles (general-

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LEE BRAND

ly called 'soot') deposited on the bottom. This is also true of gas and liquid fuels."

Then they illustrate five utensils with blackened bottoms and a match being applied to the bottom of a teacup upon which a blackened surface is shown.

Let us give the lie to this statement here and now. There are millions of American homes using gas for cooking that have metal and glass utensils in service for years still shiny and sparkling clean.

LP-Gas is composed mainly of carbon and hydrogen. When burned in modern gas appliances the products of combustion are water vapor and carbon dioxide. The latter, carbon dioxide, is a colorless and odorless gas used in soda water and other refreshing beverages. In fact, the products of gas combustion are most nearly like the breath which a person exhales. This is surely a long way from the carbon, grease or tar, water and noxious gases alleged by our friends, the electric men.

In this so-called proper course for electric salesmen, our friends the electric men say: "There will be no need to run down any other kinds of cooking in presenting the advantages of the electric range. The obvious truths are that open flames will always be a danger, and explosive toxic fuels are a constant menace. But most people get used to a danger, and tend to ignore it. So you will be doing your prospect a real service in awakening her to electric range safety, and dramatizing its advantages."

"Hogwash!" says Mr. Brand, and then quotes figures:

Let us take a look at the records. Actual fire losses from 1941 to 1945, as compiled by the National Fire Protection Assn., shows 74,800 fires for a total property loss of $39,500,000, being caused by electricity. Where, at the same time, gas and gas appliances caused only 4300 fires for a total loss of $2,450,000. From this report, gas and gas appliances stand twenty-second in the list of fire causes, while electricity is third. Since there are 25,000,000 homes, shops, and factories using gas, and 31,000,000 wired for electricity, even after deducting a liberal 20% from electric fires to compensate for fewer gas-served structures, the hazard of electricity over gas is 14 to 1.

Glib Statements Come Easy

In this booklet, our friends say, "Electric cooking is dependable. Dependability in the sense that it means the same cooking results every time, is worth a great deal to your prospect. You can make a strong selling point of this advantage of dependability.

"Cooking failures are apt to result unless you can be absolutely sure that

once you set your heat control at a given position, it will always be the same—today, tomorrow, or a year from now. With the electric range, you may rest assured that heat is absolutely dependable. First, the electricity that gives you your heat is constant. There is no change in the pressure of your fuel supply, etc."

Actually, at this point in their course, our friends have stretched their facts. Actual tests will prove that oven temperatures are more constant with gas than with electricity. A gas oven set at 500° will, right at the beginning, probably over-shoot about 25°; however, it will then level off and maintain a constant, even temperature. An electric range test showed an overshooting the first few minutes of 75° or better. Then the range never leveled off to a straight line, but actually had a variation anywhere between 450° and 515°. We think gas is controlled far better.

It's Either On or Off

Their statement about cooking results is probably the most ridiculous they have ever made. The same manufacturers make gas and electric oven thermostats. Both types are highly dependable, but there is a great difference in gas and electric oven performance because in the inherent difference in application the electric oven element is full on or completely off. The gas oven flame is throttled smoothly and actually to maintain the desired temperature within very close limits.

This course warns that the average flame type cook stove burns as much oxygen as is consumed by 20 human beings. It is difficult to be serious in answering this charge.

The writers of this course encourage their salesmen to explain how oven vapors are condensed. We'd like to hear a bright salesman's explanation of that one. Where do these vapors go after they are condensed? Do they run back into the bottom of the oven, forming an accumulated gravy or sauce electra, which must be drained periodically like the bottom of an automobile crankcase?

To show you how inconsistent they are on a previous page they told how the nice electric company took out all the dirt at its plant and did not allow any nasty soil to reach the electrified kitchen.

Could it be possible that steam and grease from the food and not any dirt from the fuel was what our friends have been trying to hang onto the gas range all these years?

No Magic in Electric Range

All through the course, the kilowatt boys tell how much hotter gas cooking is than electric cooking. Just so much heat is required to cook a meal, and if you do not produce that much heat you will not cook. The electric boys are not magicians, their ranges are not surrounded by refrigeration. The electric range gets just as hot as the new, modern, insulated gas range, and most certainly just as much heat is lost from the top burner as from the burner on a gas range.

I can think back a few years ago when the electric boys used as one of their selling points a completely sealed oven. You don't hear anything about that today. They had to discontinue it because they found that in order to do a good baking job, the oven must be vented so that a circulation of fresh air was provided. When they were using the completely sealed oven they found that the food was steamed and not baked.

They also found that cooking odors accumulated in oven insulation and oven linings and after they had used the electric range for a short time,

all foods had a peculiar taste caused by this accumulation of odors. Very frankly, after a few months' use, you had to open up your kitchen door ever so often to get rid of the odor coming from the electric range.

Now, as to the matter of costs, the average electric range is considerably higher than a gas range. Gas ranges, in my opinion, are far more beautiful in design and are certainly constructed of better materials and are far more desirable from an appearance standpoint for any customer's kitchen. The cost of operation of an electric range is far greater than that of a gas range.

The average cost of LP-Gas throughout the entire country is 20 cents per gallon. The average Btu content of a gallon of LP-Gas is 96,000. The average cost of a kilowatt hour is 2½ cents. The Btu content is 3415.

Do you realize that electricity, in order to compete with your LP-Gas, would have to sell for .6 of a cent per kilowatt hour, as compared to 2½ cents now? In other words, the cost of electricity over gas is more than four times as great.

Service costs on gas ranges are practically unknown. The electric element on an electric range must be replaced on an average of every two years. This becomes a rather expensive service charge every time it is done.

Let us be vehement in our denunciation of an industry relegated to truth distortion. Let us tell the American public the truth. Let us take down our hair, double up our fists, and start swinging.

•

Here are some interesting figures that have been published since Mr. Brand made his address:

The manufacturers of one brand of electric range have surveyed 10,000 of their customers, people who bought ranges during the year ending last November.

27% replaced gas ranges.

26% replaced ranges using other fuels.

20% were purchases of their first ranges.

27% replaced older electric ranges.

Electric ranges have a 14% saturation in wired homes. Manufacturers of electric ranges expect this figure to rise to 25% by 1960.

New Phillips Office Building Will Occupy Entire Block

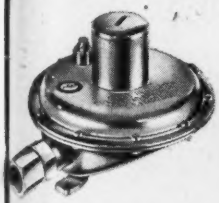
Frank Phillips, chairman, and K. S. Adams, president, Phillips Petroleum Co., have announced that a contract has been awarded to start construction immediately on both a 12-story office building and a 7-story apartment building in Bartlesville, Okla. The office building will cover the entire block bounded by Jennings and Keeler avenues between 4th and 5th streets. The apartment building will be on the west side of Johnstone avenue between 8th and 9th streets.

At present, the more than 3000 Phillips employes working in Bartlesville are occupying 30 different scattered buildings. The new office building which, due to the rapid growth of the company has been urgently needed for some time, together with the present main Phillips building and certain other presently occupied major units, are expected to accommodate adequately all Bartlesville employes of Phillips.

The new building will have a gross floor space of 415,000 square feet, or 9½ acres. The design is such that

REGULATORS

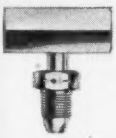
for tank and cylinder service



	SIZE	INLET PRES. P.S.I.	W.C. INCHES	ORIFICE INCHES	REGULATOR SETTING PROPANE C.F.H.	BUTANE C.F.H.	PRESSURE	C.F.H.	W.C.
No. 834	3½"	10	9	.100	55		100	30	11½"
No. 815 P	5"	10	9	.156	170		100	30	11"
No. 815 B	5"	5	9	.218		195	10	25	11"
No. 818 P	6"	10	9	.187	300		100	30	11"
No. 818 B	6"	5	9	.250		225	10	25	11"

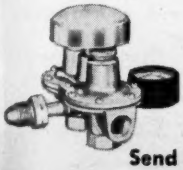
MANIFOLDS

manual and automatic



No. 1100 Tee Manifold designed especially for connecting additional cylinders to a system on a multiple-cylinder hook up.

Three-way Manual Throwover Manifold No. 1103 is ideal for connecting two cylinders or two banks of cylinders to a regulator.



Automatic Control Manifold No. 813 automatically supplies fuel from reserve cylinder when service cylinder is emptied.

NEW TYPE RELIEF VALVE

Weatherhead Relief Valves are newly designed to give double the flow capacities of older-type valves. Available in all standard pressure settings.

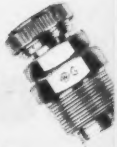
ASSEMBLY UNITS

for tank service

Weatherhead Assembly Unit No. 927 includes: Multiple Head, Relief Valve, Service Valve and Vapor Equalizing Valve. Also included, but not assembled are: Regulator, Pigtail, Quick Filler Valve, Expansion Coil, ¼" Street Elbow, Vent Tube and ⅛" Bug Screen.

Weatherhead Shut-Off Valve No. 174 especially designed for use on A. S. M. E. and A. P. I.-A. S. M. E. containers.

Weatherhead Vapor Equalizing Valve No. 504. This improved vapor equalizing valve combines a back pressure check and a spring type excess flow check.



Weatherhead Quick Filler Valve No. 401 provides quick connection between tank and filler hose. Has double back pressure check valve

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THE Weatherhead CO.

CLEVELAND 8, OHIO

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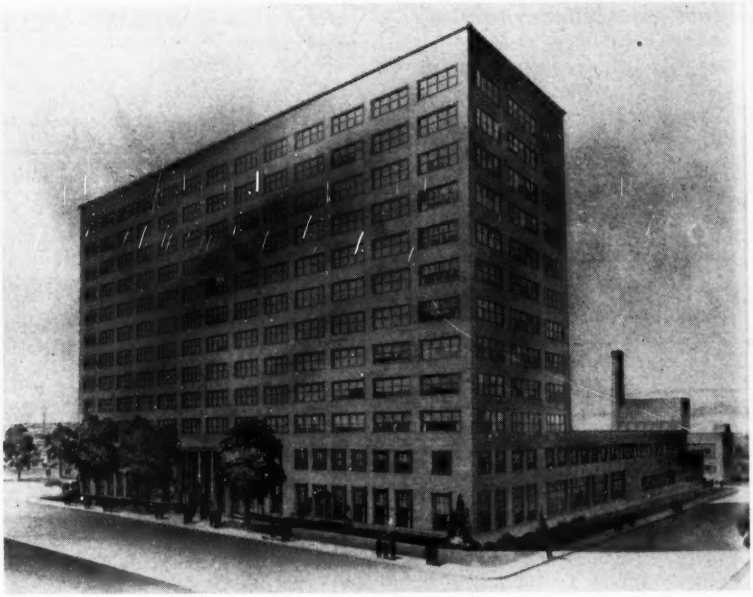

This is the way the new office building of the Phillips Petroleum Co. will look when it is completed on its block-long site in Bartlesville, Okla.

additional wings can be added if more space is needed later.

In addition to the office space, the new building will provide other badly needed facilities, such as assembly rooms, conference rooms, library, medical center, and a cafeteria designed to feed from 800 to 1200 people. A gymnasium will be provided with a seating capacity of approximately 3000.

An effort has been made to provide some of the recreational facilities ordinarily available to office workers in larger cities where office groups of this size are usually located. The Frank Phillips Men's Club and the Jane Phillips Sorority, which have long since outgrown their present quarters, will have separate club rooms with office space for their national headquarters.

The structure will be reinforced concrete frame with exterior face brick to harmonize with the present main Phillips building.

A two-story reinforced concrete frame power plant with face brick to match the main building will supply the new office building, the present Phillips building and the research building with services which include heat, air-conditioning, distribution of electric power, hot water, compressed air, laundry, and water pumping equipment.

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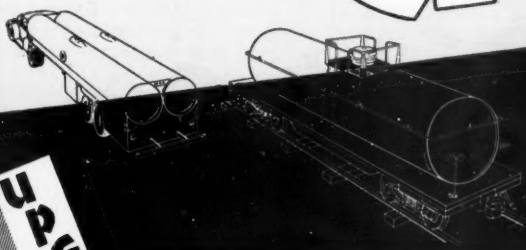

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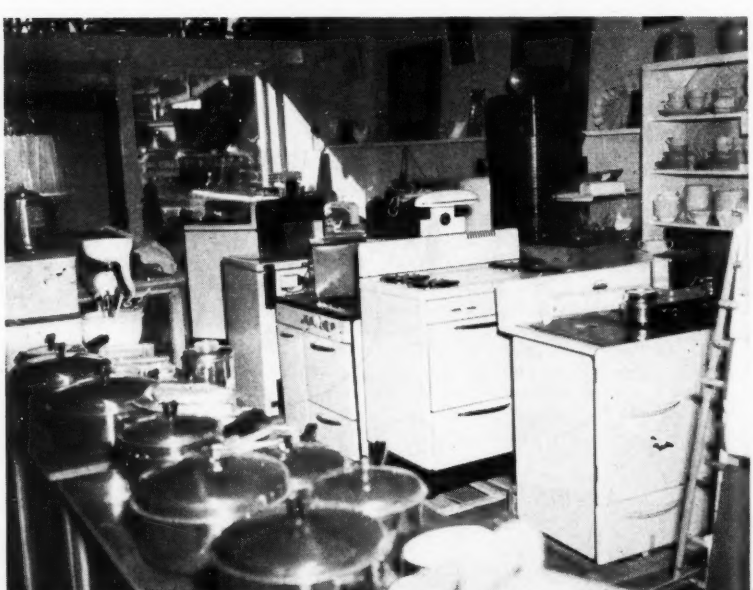
Gas Appliances Sell Best, Says Colorado Hardware Merchant

By GENE CREIGHTON

A SPECIALTY merchandising operation which has proven itself highly profitable to his firm from the standpoint of "opening up the rural market" is butane-propane gas and gas appliances, according to Emil Heller, head of Estes Park Hardware Co., Estes Park, Colo.

"Butane and propane gas as applied to cooking, heating and refrigeration were at one time something of a mystery to the average suburban or country homeowner," Mr. Heller pointed out. "But after more than 15 years of continuous use they have become solidly accepted. We found, when entering the field, that many people who have held off installation of LP-Gas equipment did so in the hope that low-rate electrification of rural areas would make possible elec-



LP-Gas appliances constitute the most important display for Colorado hardware store.

tric cooking and refrigeration. Much of this electrification has failed to come through, and we find that many customers are so thoroughly sold on liquefied gases that they will continue to use them in any case."

Estes Park Hardware Co. now "covers the field" from an appliance merchandising standpoint, incorporating kerosene, electric, natural gas, and liquefied petroleum gas appliances. Sales of the last named have proven so profitable that it has been necessary to set up a separate "appliance annex" in which are shown floor furnaces, panel heaters, ranges, refrigerators, space heaters, and other gas-burning equipment. Each of these lines has been added according to "want book" requests from customers. The appliance annex shows around a dozen appliances at all times, more than half of which are for use with LP-Gas, all in nationally-advertised lines, and available on time-payment plans, as are other large unit items in the store.

Must Analyze the Market

"Making a success in this field means getting out, surveying the market away from the electrical power lines and natural gas mains," Mr. Heller said, "and may require considerable research. The dealer must determine what type of appliances are most in demand, for in some areas the emphasis will be on LP-Gas heating, while in others it may be on cooking—depending upon the local fuel supply, severity of winter months, etc. In our own case, we have found plenty of market for all three brackets of LP-Gas use—and while we are comparatively short on gas-operated refrigerators, all sell at about an equal pace."

Second, Mr. Heller emphasized, the hardware dealer must be willing to handle the job of distributing gas to customers himself. Soon after going into the butane-propane field, Estes Park Hardware Co. was agreeably surprised to find that it had built up a regular route amounting to something like 330 bottled gas customers. These are serviced by the same trucks which take care of appliance installation, maintenance, and repairs, and gas sales, themselves, make an excellent showing on the store ledger.

Handles Bottled Gas Only

Gas handling is kept simple through the fact that the store distributes only previously bottled gas, delivered by a local distributor and stored in a convenient warehouse until loading time on the truck. Operation of a bulk plant, while it might entail slightly more profit on gallonage gas sales, requires a much larger investment, according to Mr. Heller—and therefore, the 100-pound gas bottle, which may be simply connected to replace an empty one, has proven ideal. "With more than 330 gas accounts, we have found it necessary to keep two full-time men employed as drivers, gas servicemen, repair mechanics, etc.," Mr. Heller said.

The store maintains warranties on all of its own butane- or propane-fired equipment, with the exception of refrigerators, which are cared for by the local gas utility. However, except for thermostat adjustment, control repairs, etc., there has been little or no heavy service load to contend with.

The store itself proves an effective "sample" when it comes to selling either butane or propane gas for heating purposes, inasmuch as Estes Park Hardware Co. has a warm-air heating system fired entirely by butane gas. Demonstrating the small furnace which handles the job, its smoothly controlled flame, Btu output, etc., goes a long way toward

DESIGN, CONSTRUCTION and OPERATION of LP GAS CONTROL EQUIPMENT
SUGGESTED APPLICATIONS for LP GAS CONTROL EQUIPMENT
INDEX and PRICE LIST
CAPACITY TABLES, PERFORMANCE DATA, etc. for LP GAS CONTROL EQUIPMENT
EXCERPTS from NBFU PAMPHLET No. 58 (Pertaining to LP Gas Control Equipment)
SPECIFICATIONS and DRAWINGS of LP GAS CONTROL EQUIPMENT
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SECTION LD: Internal combustion engine equipment.

SECTION LE: Cylinder, globe, angle and tank car valves.

SECTION LF: Low pressure and high pressure regulators.

SECTION LG: Filler, vapor and excess flow, double check filler, excess flow and automatic cutoff valves. Hose couplings and unloading adapters.

SECTION LH: Pop action and diaphragm type safety relief valves. Fuse plugs.

SECTION LJ: Slip tube, fixed tube and rotary liquid level gauges (Rotogages). Gauge glass assemblies, pressure gauges and low pressure test sets.

SECTION LK: Miscellaneous fittings, such as expansion coils, couplings, swivel couplings, hose nipples, etc.

SECTION LM: Price list and index of all standard assemblies and replacement parts.

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4. Capacity Tables, Performance data, etc.
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Special bulletins and timely revisions are issued periodically to all who have RegO Catalogs so that they are constantly abreast of new developments and changing conditions within the industry.

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making sales to homeowners. "We simply demonstrate that all of our installations comply exactly with Colorado's regulations for liquefied petroleum gas installations, that we place the tank for maximum safety, and that we engineer each job individually," Mr. Heller said.

"Inasmuch as every appliance sale means a regular gas purchaser, we consider it well worth while to send a mechanic around to make a free callback after the installation has been made, and to see that the customer is deriving maximum satisfaction."

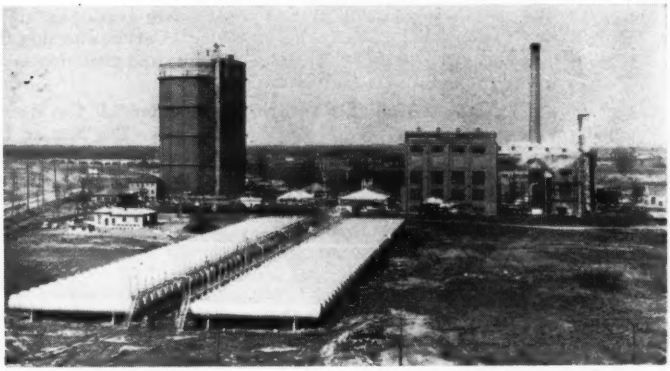
Hydraulic Institute Issues Pump, Pipe Friction Standards

The 1948 issue of "Standards of Hydraulic Institute," published by the Institute at 90 West St., New York, is the eighth edition of a book that has grown from a 19-page booklet to 214 pages since its first publication in 1921.

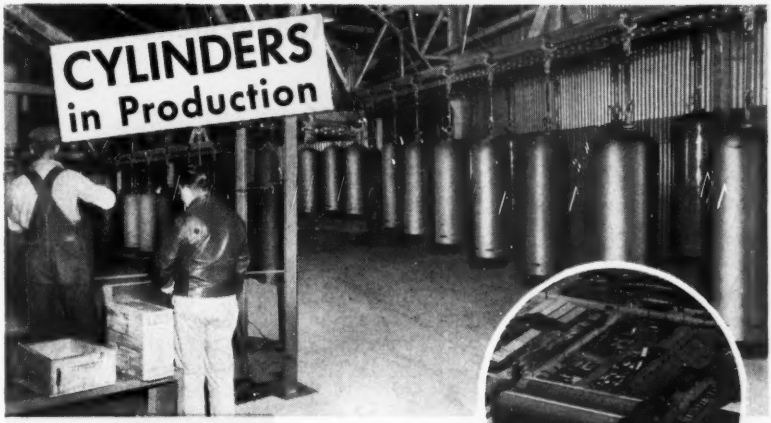
The material in the current edition is submitted as being what is considered good engineering practice in the pump industry and is believed to be of value to the purchasers and users of pumps, the engineering profession, and to pump manufacturers.

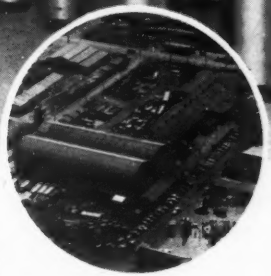
This completely revised edition consists of six sections—general, data, centrifugal pumps, reciprocating pumps, and tentative standards on pipe friction. The sections covering the three broad classifications of industrial pumps contain their own test codes. The price is $3 in the United States and possessions.

The Hydraulic Institute is a trade association comprising the principal manufacturers of displacement and centrifugal pumps in the United States. It was organized as The Hydraulic Society on April 18, 1917, and has since functioned as the trade organization of the pump industry.



This is a view of the Michigan Consolidated Gas Co. properties at Detroit. There are ninety-six 30,000-gallon tanks, which hold an aggregate of over 2,500,000 gallons of LP-Gas. This is said to be the largest LP-Gas installation in the world.





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The Responsibility of Management For

Safety

By EDMUND T. PRICE
President, Solar Aircraft Co., San Diego, Calif.

ALL of the safety engineers and other experts in this field will agree at the start that safety *is* management's responsibility and hence there is nothing to talk about. It would perhaps be more stimulating to present a paper on the somewhat more controversial issue that safety is *labor's* responsibility, or at the very least a joint responsibility.

E. T. PRICE

There are a few items in our experience which may be new and interesting and which may perhaps allow some of you to return to your respective plants better equipped to do the job of selling safety. First, last, and all the time the job of accident prevention is that of salesmanship.

Reverting for a moment to the responsibility which corporate management has on the subject of safety it is proper to mention first that there are strictly humanitarian issues which cannot be ignored. Within the confines of company-owned property there are thousands of men and women whose health and physical fitness are the responsibility of management not only by law but by moral right.

It is management's privilege to provide these safeguards even if it were not a duty. Enlightened management in modern industry can contemplate with satisfaction the improvement in morale and even in the quality of work which arises and which is produced in a safe and sanitary plant.

The humanitarian aspects of safety are an integral part of modern management even though the mere recital of this fact in the abstract tends to open it for attack on sentimental grounds. Even though it may be more difficult to

---

Safety is not, of course, a concern of the gas industry alone; and accordingly, although among different industries the safety problems and factors may differ radically, all industries seek the answer to a common question: How can we make a safety campaign work?

Although Mr. Price, as president of the Solar Aircraft Co., San Diego, Calif., is in a field removed from the gas industry, his experiences in tackling the problem of accident reduction and prevention are of value to any industry.—Editor.

A "SAFE PRACTICE" and A "SAVE PRACTICE"

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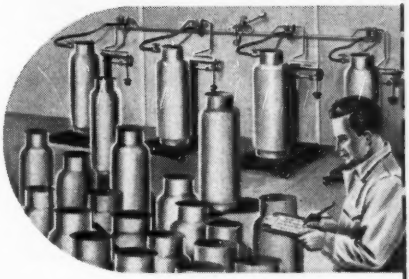

Roney automatic cylinder filling manifolds prevent overfilling so that operator can safely perform other operations.

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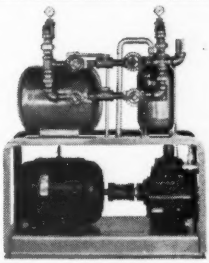
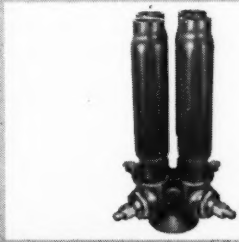
Save with Safety—Buy **RONEY**





Roney relief valve manifolds allow for testing or servicing of one relief valve at a time without removing storage tank from service.

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prove, this humanitarian issue can be shown to pay off in dollars and cents sufficient to satisfy the most skeptical of managers who view a safety program on merely a cash basis.

I am told that this was not always so. Many of you are more familiar than I with the history of the safety movement during the 20th century. Previously, life and limb were cheap, with the human carcass discarded when it could no longer contribute to the profits of an inanimate, corporate entity.

Today, management can gauge its success by the attitude of the employes and the attitude of the community itself towards those men who are conscious of their accident responsibility. I believe that there are few managers who now can long survive in their positions of authority unless they sympathetically consider the protection of people committed to their care.

Employe Negligence

And yet, human nature is a queer thing. Most of the difficulties in accident prevention with which management and its safety engineers contend will be in the failure of the employe to protect himself with the precautions and safety aids that are furnished. I shall have more to say on this subject in a few moments, merely remarking at this point that even this human frailty is another one of management's responsibilities.

A new company just forming will find itself insured, willy-nilly, with a responsible carrier under a rating that sometimes fits as closely as a size number nine shoe fits on a small boy. In the effort to comply with all the new rules and regulations the company hires a safety engineer and tells him to go to work, aided by the experts from the insurance company.

Small Company Management

In many instances management cannot yet afford a safety engineer and management, itself, assumes this responsibility along with the hundreds of other duties and responsibilities which management must undertake in a small and growing company.

This was, therefore, my responsibility in our small company in California during the early thirties. Originally, as an aircraft manufacturing plant, we enjoyed a relatively favorable rate. I think the so-called "manual rate" established by the California rating bureau was slightly over $2 per $100 of payroll.

When we stopped building airplanes and went into the business of manufacturing exhaust manifolds, our manual rate jumped to something over $5 per $100 as the rating bureau classified our company as a sheet metal shop. Perhaps we were, but we protested and finally compromised with the classification of tube manufacturing, which carried the manual rate of $2.33 per $100 of payroll.

This manual rate is to be compared to the schedule rate which is that figure assigned to each plant by the rating bureau after an inspection of the buildings, mechanical safeguards, safety program, safety committees, first aid facili-

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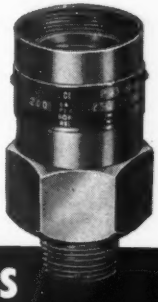

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"BETTER FITTINGS IMPROVE YOUR PRODUCT"

ties, and other similar conditions installed by management.

In California this is the yardstick of comparison with established standards. However, actual premiums are paid on the so-called "net rate," which is the schedule rate times the experience percentage. The latter is computed yearly and is the amount of the premiums consumed, based upon the average of the previous three years.

Financial Returns

I find in looking over our records for 1933 that we had a manual rate of $2.33. Apparently the rating bureau didn't think much of our shop because they gave us a schedule rate of $2.51. However, our experience was 93% average for the previous three years, which brought the net rate back to $2.33.

Two years later, with the improvement in safety features, our net rate was down to $1.96. Two years later, in 1937, it had dropped to $1.61, with only slight fluctuations in between. By 1940 it had further dropped to $1.43.

The next year it was $1.26, and ten years after the start of the safety drive it was $1.06, with an experience ratio of 72%. I might add that at the present time, under self-insurance, we are carrying reserves at the standard premium rate but enjoy an experience ratio between 40% and 45% during the past two years.

Going back, however, to 1942, I find that the amount of premiums paid was $70,410.23 at the net rate of $1.08. However, the important point is this—if we had not put on a safety drive over this 10-year period we now would have had to pay an annual charge of $151,903.55 at the $2.33 rate charged in 1933.

In other words, the difference or savings effected in 1942 was $81,493.32 as a result of this effort, disregarding the other savings also obtained in the intervening nine years.

The financial effects of this 10-year drive for safety in our plant are proved in dollars and cents. It is safe to say that no other minor investment can bring such outstanding returns. Even if there were no moral responsibility to the employe or to the community, safety, as management's responsibility to the stockholders, is firmly established.

Possibly our company has been most fortunate and in many ways I think it has been, but I can submit some further striking figures which show the effects of a safety drive in one of the more dangerous operations in our company.

Again we will consider that the humanitarian aspects need no further emphasis, and we will undertake to prove the point by the financial gains and the improvement in effective man-hours of the skilled workers.

In our forming department, which stamps many different types and shapes and sizes of stainless steel sheet, we use air or rope-operated drop hammers of various sizes. A male die is bolted to the hammer head and, frequently, the combined weight of the head and its die reaches the weight of one and

It's "SALES HO"

for the Servel GAS Refrigerator

Cash awards plus credits toward Victory Vacation Flight to Mexico City await the winners of the Flame of Freedom's Second Quarterly Campaign

By this time, your "Sales Ho" Campaign is doubtless well under way. You've found that it has been a great help in getting your all-important 1949 selling program on the Gas Refrigerator off to a good start. The buyers' market is making its presence increasingly felt with each passing day. And during these next twelve months, it's going to take selling—and plenty of it—to move merchandise.

To offer salesmen continuous selling incentive is the important aim of any sales program. The "Sales Ho" Campaign provides quarterly cash awards for both utility and non-utility salesmen . . . and a special trophy award to gas companies. In addition, sales made during the Second Quarter count toward the annual grand award—the Victory Vacation Flight to Mexico City.

Servel
The GAS Refrigerator
THE FLAME OF FREEDOM PROGRAM
Sponsored by COMMITTEE ON GAS REFRIGERATION OF A. G. A. and G. A. M. A.
Donor of all awards SERVEL, INC.

one-half to two tons, sometimes as high as 10 tons.

This hammer, with the die, falls on its counterpart by gravity or by air pressure through a drop of three or more feet to form the sheet metal blanks. The space between the dies, when the hammer head is raised and held by the latches, is wide enough for the operator to reach in with his head and shoulders to examine the semi-finished stamping.

Frequently, as the metal wrinkles before it assumes the smooth contours of the finished part, it is necessary to reach in and, with a hand hammer, pein the objectionable folds and other critical areas which might spoil the stamping.

When this work has been done by either the operator or the helper, complete understanding must exist between the two men by signals or other means for withdrawal of fingers, hands, arms or head prior to the release of the safety catches and fall of the great weight.

Various forms of sliding guards and other protective devices have been tried but the main success was achieved in dealing with the men themselves.

This took the form of a special safety drive for the forming department alone. Going back to 1942, there had been 44 accidents in which nine resulted in permanent injuries for the 12 months ended Oct. 31, 1943. There were 19 lost time cases among these accidents, with 23,512 man-hours lost.

This may give some indication as to the seriousness of the problem. Fortunately, there were no deaths. However, the medical and compensation bill in this department alone in our company for the 12 months under review amounted to $15,631.34. In addition, the cost of permanent disability cases, including artificial limbs, was $14,953.65 or a total of $30,584.99.

Early in November, 1943, a special meeting was held in the office of the senior vice president of the company in San Diego for the purpose of discussing the situation. There were present the senior vice president, the works manager, the industrial relations director, the personnel manager, the insurance administrator, and the safety engineer.

A safety program came out of this discussion with the realization that further work and expense in supplying guards and other protective devices would have little effect in improving the record.

"Selling" Safety

It was determined that the largest part of the problem lay in the job of selling safety to the workers themselves. Management's responsibility was not so much in supplying safety devices as it was in teaching the worker.

Management must enlist the support of the worker. It must arouse his interest. It must get the worker to think. You don't get this from rules and regulations; you get it from stimulating the worker and acting promptly on his suggestions.

When a safety drive brings these principles into play, the results are astounding. Basically, however, it

is a job of salesmanship, and first, last, and all the time, as I have said, the safety engineer has a selling job to do.

In our case, management agreed that the first step was to close the entire forming department on each of the three shifts for one hour a month for special safety meetings, on company time. Twice a month would have been better.

The first meeting was attended by the operators and helpers and also by the shift superintendents, and plant works managers.

The losses of the past year which had been suffered by the individuals involved in the accidents were discussed in detail. Principally, the men themselves were encouraged to talk but before the meeting had progressed very far it was apparent there was a certain amount of reluctance on the part of the operators and their helpers to open up the talk freely.

In discussing this with management it was decided that the presence of the supervision itself was an impediment and so, except for the foreman and general foreman, the superintendents and works manager were left out of the meetings except on special occasions. During the roundtable of discussion each man was asked to voice some suggestion as to how safety in the department could be improved.

The first meeting resulted in 15 suggestions from the day shift, 14 from the night shift, and 12 from the dawn shift. Other suggestions followed at succeeding meetings as interest was aroused. The men were given to understand that every suggestion made in the meetings would be given prompt consideration.

In every instance where suggestions could not be adopted, satisfactory reasons were given and those rejections were always submitted in a manner so as not to belittle the suggestion or cause embarrassment to the employe.

It soon developed that the policy of giving prompt consideration or answer to all suggestions made by the men won interest and confidence, which is the first principle in salesmanship.

Friendly Meetings

Beginning with the third meeting the discussions were established on a congenial and friendly basis. It is thought that this genial atmosphere which was created was the greatest single reason for the cooperation shown.

At subsequent meetings each employe was given a copy of the minutes of the previous meeting, and a written report was submitted showing the action taken on each suggestion previously made.

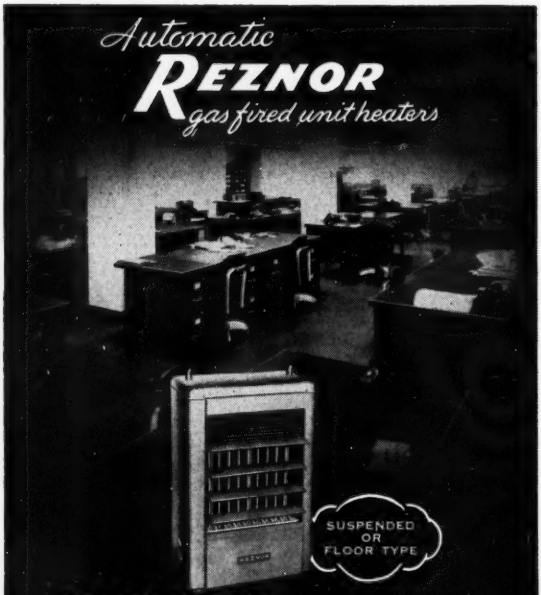
It is interesting that early in the program certain personnel problems developed. There were in particular three individuals on two different shifts who gave evidence that they were not interested in the program or in promoting safety in this hazardous department. The personnel manager took prompt and decisive action in cooperation with the works manager. One man was fired; another was transferred; the third converted.

The safety inspector and the

Automatic

REZNOR

gas fired unit heaters



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For public buildings

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safety engineer spent at least one hour a day on each shift in the forming department in order to become intimately acquainted with each employe. The problems of the job were discussed and the safety engineer personally investigated the results of each suggestion which had been put into effect.

A daily log was maintained of the activities of the safety engineer and safety inspector in the department and this had aided materially in giving a check on the mechanical conditions and various morale problems connected with the department.

It is significant that management and plant supervision cooperated wholeheartedly in this drive. It is believed that the program would have been ineffectual without this active support. It was necessary also to require the support and interest of the maintenance crew in order that suggestions and requisitions should be promptly and effectively completed.

Results Surprising

When the drive was started it was the expectation of management that possibly two or three of the more serious accidents which had been occurring regularly throughout past years could be eliminated. The results of the drive over a 12-months period ending Oct. 31, 1944, were beyond our fondest hopes and are as follows:

Instead of 44 accidents as in the year before that, there were 11. In place of lost time cases of 19, after the drive started there were none. In place of nine permanent injuries of the previous year there were none. In place of 23,512 man hours lost in the previous year, there were none. In place of $30,590 in indemnity and medical payments of the previous year, there was a total medical bill of $191.34.

The figures are startling. It can be truthfully said that almost any effort put out by management to promote safety will bring tangible returns, but I believe that the main success in this drive came from the fact that management realized it had a selling job to do. As a matter of fact, considering the broad field of management, that is probably management's chief function.

Seldom is any active management free from this necessary function. By the same token, the safety engineer and the safety inspector must be good salesmen. First, last and always, salesmanship must be present in dealing with human beings, including, as I have said, the activities of the insurance agents who descend upon unsuspecting management when a policy is about to expire.

The average man does not recognize the hazards of industrial life and even when these are understood by the few with greater intelligence, the safety engineer is confronted with such human characteristics as boldness, vanity, horseplay, carelessness, or the natural desire of one man to show off before his fellows.

Some of these things you cannot guard against except through salesmanship and arousing the interest of the employe.

ASSOCIATIONS

CALENDAR

All associations are invited to send in dates of their special and annual meetings for this calendar.

Feb. 14-15—Canadian District, LPGA, annual meeting. Royal York Hotel. Toronto, Ontario.

Feb. 28-March 1—Liquefied Petroleum Gas Assn. Directors' meeting. Biltmore Hotel. Atlanta, Ga.

March 17-18 — National Butane - Propane Assn. Directors' Meeting. Columbus Hotel, Miami, Fla.

April 5-7—Gas Appliance Manufacturers Assn. Annual meeting. Broadmoor Hotel, Colorado Springs, Colo.

April 11-12—Tennessee Liquefied Petroleum Gas Assn. Andrew Jackson Hotel. Nashville.

April 20-22—Natural Gasoline Assn. of America. Texas Hotel. Fort Worth, Tex.

May 9-11—Liquefied Petroleum Gas Assn. Annual Convention and Trade Show. Palmer House. Chicago.

June 6-10—Texas Butane Dealers Short Course. Texas A & M College. College Station.

Sept. 19-21—National Butane-Propane Assn. Convention and Trade Show. Jefferson Hotel. St. Louis.

LPGA's 1949 Convention Program Now Being Prepared

Clayton Rand, the Gulfport, Miss., editor, who has established a nation-wide reputation for his sage political humor, will be one of the luncheon speakers at LPGA's 1949 convention. Mr. Rand, who last appeared before the liquefied petroleum gas industry at LPGA's District meeting in New Orleans in December, 1947, is well known to the LP-Gas industry.

JOHN PANKOW

H. H. TORBIT

J. Richard Verkamp, convention chairman, in announcing the signing of Mr. Rand, said that this was only the first of a number of outstanding speakers who will appear at the convention, scheduled for May 9-11 at the Palmer House in Chicago.

Mr. Verkamp's committee, consisting of Harold Alty, Home Gas, Ltd., Winnipeg, Canada; Peter A. Anderson, Utilities Distributors, Portland, Maine; George W. Bach, Skelly Oil Co., Kansas City, Mo.; A. C. Fink, A. C. Fink S.A., Mexico, D.F., Mexico; B. D. Geroy, Illinois Bottled Gas Co., Chicago; Harry I. Horn, Anaheim, Calif.; Alton S. Lutz, Protane Corp., Erie, Pa.; John C. Pankow, Detroit-Michigan Stove Co., Detroit, Mich.; James P. Parker, A. O. Smith Corp., Houston, Texas; H. H. Torbit, Union Gas & Equipment Corp., Pueblo, Colo., has been actively engaged for the past month in preparing the program.

While final arrangements have not been completed, invitations have been extended to several national figures in addition to prominent men in the industry. "We are sparing nothing to assemble the most outstanding and helpful representatives in the industry and the nation to make this a really worthwhile program," Mr. Verkamp said.

Plans for Social Program

The convention program calls for three luncheons with speakers and four other speakers on the general program. Exhibits will be open in the morning and evening, and the convention program and business meetings are scheduled for the afternoons. Strictly for entertainment, on Tuesday evening, May 10, there will be a friendship party sponsored by the exhibitors, and on Wednesday, May 11, the customary banquet. Mr. Verkamp promises a floor show of headline entertainers at the banquet.

One of the largest and best exhibits of LP-Gas appliances and equipment is fast shaping up, with over three-fourths of the 111 booths already contracted for.

The Association's sections under their section chairmen, Mr. Verkamp for the Marketers; Lee Brand, of Empire Stove Co., for the Appliance Manufacturers; Robert Poethig, of Bastian-Blessing Co., for the Equipment Manufacturers; H. W. Rigterink, of Sun Oil Co., for the Producers; Ralph Sieben, of Metrogas, for the Utilities, and George M. Parker, of Standard Oil, for the International Section, are busy setting up a program for their Sectional meetings on Tuesday afternoon. The program of the Marketers Section is nearing completion and, in addition to the business meeting, talks on safety, proper financing and good management practices will be presented.

NBPA Making Early Plans For 1949 Convention Next Fall

At the December meeting of the board of directors of the National Butane-Propane Assn., there was preliminary discussion of that organization's annual convention to be held in St. Louis next September. The theme "Sound Management" was selected for the business part of the convention program and the contemplated buffet supper and entertainment part of the program will be designated as "Show Boat Days."

A membership campaign slogan for 1949 was selected and will be used in the membership drive. It is "Follow the Trend—Join NBPA."

According to Elwin E. Hadlick, executive vice president, the NBPA directors are seriously working on a safe practices code which will be in final form at the March 17-18 directors' meeting at the Columbus hotel in Miami, Fla. It is planned to ask operators in the industry to pledge themselves to observe NBPA's code of safe practices and, in turn, for the association to issue a certificate, suitable for framing, which will indicate the signing of the pledge.

North Texas LP-Gas Dealers Form New Association

Organization of the North Texas Butane Dealers Assn. was completed recently at Possum Kingdom Lake, Texas.

The meeting of 32 dealers and their employes was held at the Calvin Gas & Appliance Co. camp site on the banks of the lake.

The district group elected W. G. Ireland, Martin-Ireland Oil Co., Wichita Falls, president, and E. C. Mooter, Bovalene Gas Co., Wichita Falls, secretary.

Kansas and Oklahoma Associations Will Function as One Organization

A cooperative arrangement between the Oklahoma and Kansas LP-Gas associations to work together and utilize the services of the same executive secretary for a period of six months, was worked out at a joint meeting of the directors of both associations held at Oaklahoma City, Jan. 6.

R. H. MAHNKE

During that time R. H. Mahnke, executive vice president of the Kansas association, with headquarters at Wichita, will spend about 40% of his time working on a reorganization plan for the Oklahoma association. If this plan proves to be successful, the Kansas and Oklahoma associations will merge under one organization.

The idea, proposed at the Oklahoma meeting and an earlier meeting of the two association boards at Wichita, of working out a regional organization to include several states was laid aside for the present.

Following the resignation of Fred L. Yates, as the executive secretary of the Oklahoma association last September, that organization has maintained office headquarters at its former location in Oklahoma City and kept them open with an office secretary in charge.

At the recent meeting in Oklahoma City, the Oklahoma board voted to extend the terms of all present officers in force for another year.

The Oklahoma and Kansas associations have many problems in common and their officers believe that the two organizations can work together advantageously.

LP-Gas Service School Set For Denver, Feb. 7-9

Dates for the first LP-Gas Service School ever held for high altitude operations have been set for Feb. 7-9 in Denver. Jointly sponsored by the Liquefied Petroleum Gas Assn. and the Colorado state association, the school will be conducted by the national group.

K. R. D. Wolfe, chairman, and F. N. Mabee, district member of the LPGA educational committee, promise that a complete course of instruction in every phase of LP-Gas operation will be offered. Instructors for each subject will be recognized authorities in their respective fields.

Representatives of producers, marketers, distributors, and equipment manufacturers will be present. Each subject will be covered by a lecture with working exhibits and illustrations, and a question-and-answer period will follow each lecture.

It is stressed that this is not a convention but strictly an educational course. There will be no banquets or outside activities nor will there be exhibits of appliances and equipment except those used in class meetings.

Though sponsored by the above associations, attendance is not limited to

HERE'S A SUCCESS STORY, Mr. Dealer!

380 WARCO FURNACES

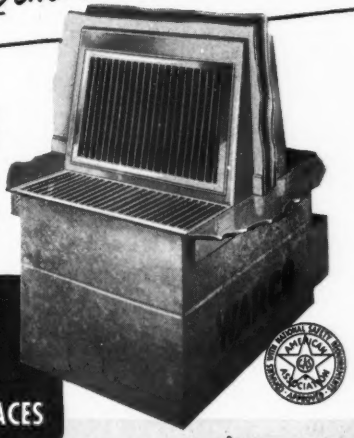
were installed recently in one home development.* Here's more cash evidence that you can make big sales in the new home construction field.

PS: If you are not a WARD dealer it is profitable to be one. WRITE US TODAY.

* NAME ON REQUEST

Contractors, home project developers and individual owners are all looking for quality heating installations that meet their low budget demands.

Many Ward dealers are cashing in on this great all-year market. They are beating the competition with WARCO Furnaces that provide plenty of heat, luxury features and a five-year guarantee at the lowest comparative cost.



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K. R. D. WOLFE

J. KNOX SMITH

members. Hotel accommodations have been secured but application must first be made through John Knox Smith, c/o LPGA, 11 S. La Salle St., Chicago 3. Mr. Smith will be one of the principal instructors at the school.

Annual Meeting of Canadian District, LPGA, Feb. 14-15

The annual meeting of the Canadian District of LPGA will be held at the Royal York hotel, Toronto, Ontario, on Feb. 14-15, beginning at 9:30 a.m.

A suitable program is under the supervision of M. E. McLean of National Propane Co., Ltd., and C. N. Chapman, Brass Manufacturing Co., Ltd., London, Ontario, secretary of the District.

All members are urged to submit to the secretary any matters desired to be placed on the agenda, to make direct application to the Royal York for room accommodations and notify the secretary of intent to attend.

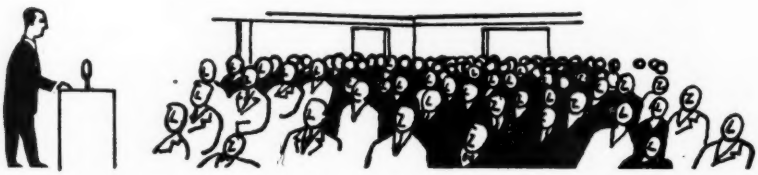
Since action is pending to provide appropriate revisions in Association organization to strengthen and augment the activities of the Canadian District, and to promote matters of immediate importance to the industry in Canada, it is urged that all phases of the industry be represented at this meeting.

GAMA Offers Rich Prizes In Water Heater Sales Contest

GAMA's water heater division has its "Court of Flame" sales contest in full swing now, with a goal for 1949 of two million units. The year-long campaign is designed especially to spur the sales of top quality, adequately sized gas water heaters, with salesmen for retailers, gas companies, and individual retailers, plumbers, etc., all getting a chance at the prizes offered.

Two Buick super sedans and more than $45,000 in U.S. savings bonds head the list of prizes. In addition to the year-long contest, three-month contests have been instituted, with awards following March 31, June 30, and Sept. 30.

LP-Gas dealers and salesmen are eligible for this contest, details of which may be obtained from GAMA.



Texas Dealers Insurance Firm Ready To Do Business

LYLE BLANTON

W. J. LAWSON

A year of hard work on the part of the Texas Butane Dealers Assn. culminated Dec. 2 in the issuance of a license by the state insurance department to American Lloyds to write all forms of automobile insurance, general liability, and workmen's compensation.

American Lloyds was organized to fill a need in the LP-Gas industry, since the dealers have been finding it more and more difficult to get proper coverage and proper service. Industry men in the state have followed the pattern of many other industries by banding together and, through the use of their own funds and leadership, forming a company of their own to meet their special needs.

The company will operate under the American General Agency system, using local agents in key towns. Robert A. Hicks General Agency of Dallas will represent the company as general agent. To begin with, American Lloyds will limit its activities to the state of Texas.

Engineering and inspection service will be furnished by American Lloyds and no risk will be accepted until after it has been inspected by a company inspector.

In addition to three company officers, an executive committee composed of seven dealers will direct the operations of the insurance company. Officers include: Lyle Blanton, attorney-in-fact; William J. Lawson, deputy attorney-in-fact; and Gus J. Moos, secretary-treasurer.

Serving on the executive committee are Ira Anderson, Gene Bumpus, Odis H. Gray. W. C. Hicks, Fred Hutson, Ray Noblitt, and J. H. Winton.

Louisiana PSC Would Disqualif LP-Gas Commission

Members of the Louisiana Public Service Commission have started an action in the Nineteenth Judicial District Court in and for the Parish of East Baton Rouge, La., in which they ask that Louisiana Liquefied Petroleum Gas Commission, the director and members thereof, be made defendants.

The suit grows out of various contentions that have arisen as to the legality of the proceedings of the Liquefied Petroleum Gas Commission under the present law. The petition recites that the Public Service Commission has power and authority to regulate, govern, supervise and control the liquefied petroleum gas industry pursuant to constitutional provision, because such industry is a public utility as that term is used in the constitution.

It is also alleged that the powers delegated to the present Liquefied Petroleum Gas Commission cannot be so delegated by the legislature, and that the provisions for defining crimes and providing punishment therefor are in violation of other provisions of the constitution.

In accordance with contentions of the complaint, members of the Public

Service Commission ask for a declaratory judgment as to whether or not the law relating to the liquefied petroleum gas industry is constitutional.

While the contention is that the liquefied petroleum gas industry is subject to jurisdiction of the Public Service Commission because the industry is a public utility under constitutional definitions in Louisiana, nevertheless the case will be of interest in all parts of the country where the question of public utility has been raised. The petitioners, in addition to claiming conflict with the constitution, claim that "in its manner of production, its use, and all other important particulars, save and except the method of distribution to the ultimate consumer, liquefied petroleum gas is identical or similar to so-called natural gas."

LPGA Issues Directory Of Butane Filling Stations

A valuable list of highway stations in the West which serve butane or propane to automotive vehicles has recently been issued by Don McNary, West Coast secretary of the Liquefied Petroleum Gas Assn.

Naming 226 outlets where fuel may be obtained; showing the hours the stations are open, and indicating whether or not emergency service is available, the compilation is of great value to trucking companies and farmers who must obtain such service.

The list covers California, Arizona, Idaho, Montana, Oregon, Nevada, Utah, Washington, and one station in Mexico.

Copies of this directory are free to association members and available to non-members at 25 cents per copy. Address Don McNary, West Coast office, Liquefied Petroleum Gas Assn., 3743 Alameda Ave., Oakland 1, Calif.

Texas Short Course, June 6-10, Sponsors: TBDA, Texas A & M

The second LP-Gas appliance short course of the Texas Butane Dealers Assn. is scheduled for June 6-10 with lectures on automatic controls, proper pipe installations, theory of heating, vaporizers, and many other topics. Of special interest to Texas dealers will be a discussion of rules and regulations of the Texas Railroad Commission.

Gene Bumpus Is Chairman

Gene Bumpus, Plainview, is chairman of the safety and safe practices committee of the TBDA which is directing the school. Actually, the school is handled jointly by the association and the extension division of Texas A & M college.

Classes will be held in two buildings of the school located at College Station. Accommodations will be available for 150 men, with participation limited to members of the association and employes of member-companies.

Manufacturers of LP-Gas equipment will be invited to take part in the course by furnishing equipment and factory instructors and servicemen.

Gas Industry Had Big 1948; Outlook Bright, Says GAMA

The following are extracts from a news release at the end of 1948 by Frank J. Nugent, president of Gas Appliance Manufacturers Assn.

His references to LP-Gas are the ones particularly singled out.

Sales of gas ranges, gas refrigerators, gas water heaters and gas space heaters reached all-time highs in 1947 and 1948. Despite these sales records, manufacturers, in many cases, were

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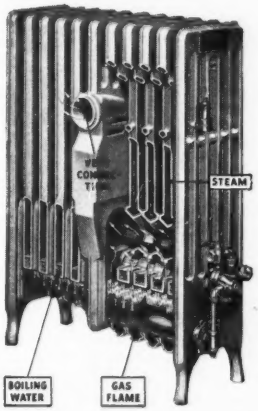
THE SUPERIORITY OF STEAM RADIATOR HEATING WITH THE FLEXIBILITY OF ROOM HEATERS

The Radiator That Makes Its Own Steam Heat With LIQUEFIED PETROLEUM GAS

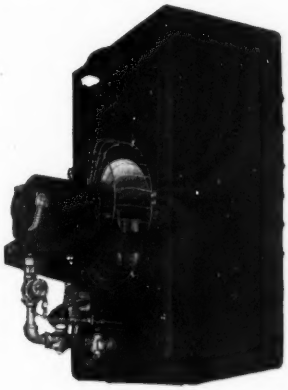


2-WAY BURNER and SAFETY PILOT

provide a means for automatically shutting off all gas to the radiator in case the pilot flame should go out.

ROOM THERMOSTATS (Optional)

Either electrical or non-electrical type may be used to automatically control the room temperature.



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85,000 B.t.u. per hour input
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prevented from meeting demands and reaching higher sales and production saturations by the lack of sufficient quantities of high grade enameling sheet steel and the lack of steel pipe which prevented expansion of gas service into many new areas and into the growing, established markets.

With an increase of almost 20% over 1947, sales of residential gas ranges attained an all-time high in 1948 and reached 2,800,000 units. Automatic gas water heater sales totalled 1,500,000 in 1948; gas space heaters 2,500,000 units; gas-fired central house heating, (furnaces, boilers and conversion burners) almost 300,000 installations. Servel gas refrigerator sales reached a new peak.

Outgrows All Other Fuels

The growing acceptance of liquefied petroleum gas as an industrial fuel and for household use in territories outside the reach of gas mains is indicated by the growth in the number of customers who have installed LP-Gas in their homes during the past 10 years. Some 4,500,000 homes are using LP-Gas today. This is an increase in customers unequalled by any other type of fuel. Approximately 26% of the 2,800,000 gas ranges sold in 1948 were for use with LP-Gas. Automatic gas water heaters for LP-Gas homes represented 12% of 1948 sales. Correspondingly high percentages of other household appliances were for use with LP-Gas.

The normal replacement of equipment in the 25,500,000 homes on gas utility and LP-Gas distribution systems, plus an estimated average increase of 1,000,000 new customers a year during the next several years, will provide a profitable and continuing expanding market for manufacturers and dealers.

Craig Espy Again Represents B-P News in Southwest

Craig Espy, widely known in the butane-propane and natural gas industries, is again a staff member of BUTANE-PROPANE *News*. He started with GAS magazine in 1926 and helped to establish BUTANE-PROPANE *News* in 1939, representing both books nationally in the advertising and editorial departments. In 1945 he resigned and lately has been associated with the "Oil and Gas Journal," of Tulsa.

Craig will represent Jenkins Publications, Inc., in Texas, Oklahoma, Kansas, Arkansas and Tennessee and will have his headquarters at 2519 South Harvard Court, Tulsa. He was so long identified with BUTANE-PROPANE *News* and GAS magazines in the states named that he will be thoroughly at home. Actually, he will be merely picking up his work where he left it a few years ago.

Wm. J. Murray Named Head Of Texas Railroad Commission

Members of the Texas Railroad Commission have elected William J. Murray Jr., a fellow commissioner, chairman of the group. Mr. Murray was appointed to the commission in 1947, succeeding Beauford H. Jester, who resigned after his election to the governorship. He was elected to the commission in 1948 to fill Gov. Jester's unexpired term.

The 33-year-old chairman is a petroleum engineer who has previously worked at his profession for the commission, been with the Petroleum Administration for War, and done industrial petroleum engineering work. His two-year term began Jan 1.

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THE TAPPAN STOVE COMPANY • MANSFIELD, OHIO

Dwindling Natural Gas Supply Augmented by LP-Gas in New Brunswick

By ED TITUS

A PROPANE bottling plant, said to be the first of its kind in Canada's Maritime Provinces, has been established by The Sumner Co., Ltd., in Moncton, New Brunswick. The plant will meet an acute situation, which recently had developed in Moncton.

The plant will consist of one 30,000-gallon storage tank equipped with four U/L relief valves, a five hp LP-Gas compressor, a five hp liquid pump and a four-scale bottling system set up in a 20′ by 40′ Quonset house erected for this purpose. The installation will follow NBFU requirements. The storage tank weighs 70,000 pounds and required two flat cars for transportation.

Moncton is served by natural gas which originates in local fields. Within the last five years, supply has progressively dwindled to the point where it is said to be ap-

H. L. HILL

M. P. FRASER

proximately half of the demand. The problem is so difficult that housewives frequently have had to cook meals in their heating furnaces or otherwise wait until 2 or 3 o'clock in the morning when gas is more plentiful, to do their cooking.

Many homes not served by natural gas were equipped with kerosene stoves. It developed, however, that the supplier who had supplied local distributors in Moncton, did not renew his contract which was to expire in November, 1948. It was therefore predicted that people who had depended upon kerosene would turn to propane.

Inspected U. S. Gas Plants

Martin P. Fraser, vice president, and H. L. Hill, general manager of Sumner Co., made an extensive flying tour of liquefied petroleum gas operations in the United States and Canada. They decided propane would greatly aid in Moncton's problem.

Within 30 days a new company was formed in which $100,000 was invested. Additional land with a spur track was purchased. A contract was signed with Pacific Gas Corp. to design, engineer, and supervise the installation of the bulk plant.

The company has plans to open branches and establish agencies, which will cover the main centers of the Maritime Provinces. These provinces include New Brunswick, Nova Scotia and Prince Edward Island.

Operation was to commence by early winter under direction of William Firner, a graduate engineer, experienced in the propane field.

The Sumner Co., Ltd. was established in 1855 in Moncton, by W. H. T. Sumner, and has continued in the Sumner family ever since. The company is a large wholesale and retail hardware distributor in Eastern Canada. Its operation includes the Sumner Propane Gas Co., Ltd., and other subsidiaries. The president is R. P. Dickson, who has passed his 75th birthday, and is actively interested in the affairs of the company.

LP-Gas Gets Good Publicity Serving Rose Bowl Concessions

An interesting story of an application of LP-Gas comes from Joe Fagan, president of Mutual Liquid Gas & Equipment Co., Inc., Inglewood, Calif. He secured from Swafford Co., Inc., concessionaires, the contract to service the 47-odd Pasadena Rose Bowl concessions with LP-Gas on New Year's day.

"Supplying the necessary fuel and burners to heat 1½ tons of hot dogs, 1500 gallons of coffee and other hot foods, all in a matter of just a few hours, really posed quite a problem," reports Bill Sellinger, Mutual's field manager.

"Fortunately, the fact that we manufacture torches and furnaces for plumbing and general industrial use, proved a distinct advantage, for our regular No. 5 burners fitted to 12-lb. cylinders handled the job perfectly."

Method of operation was to supply 2 of these cylinders to each concession and keep extra cylinders at storage points in between. Servicing was accomplished on a regular basis by a

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has been developed to an unparalleled degree in A.C.F. tank car building. This giant planer, in a single operation, cuts to width, trues the noses, bevels the upper and lower edges and two sides of the plate. It facilitates automatic welding in swift assembly-line production of all-welded tank cars that are better, stronger. See how A.C.F. standard designs for all services fit into your shipping scheme. It's the tonnage dependable answer to your transportation problem.
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periodic exchange of empty for full containers.

Approval of storage points and cylinders was first secured from the Pasadena fire department, whose rejection of other portable fuels, due to their bulk and possible fire hazard, led Swafford to select LP-Gas. Total volume of LP-Gas consumed amounted to 150 12-lb. cylinders, and the efficiency of the servicing can well be summed up in the words of one of the concessionaires: "The best service I've ever experienced at the Bowl."

Floyd Campbell Leaves Phillips For Private Practice

Floyd F. Campbell, one of the pioneers with Phillips Petroleum Co. in their LP-Gas activities, and for the past several years manager of that company's direct retail activities, has announced his resignation from Phillip's, to enter the independent consulting field, specializing in LP-Gas retail sales, business management and promotional activities. His headquarters for the present will be at his home in Bartlesville, Okla.

FLOYD CAMPBELL

At present national chairman of the Appliance committee of the Liquefied Petroleum Gas Assn., Mr. Campbell has long been favorably known throughout the LP-Gas industry. A graduate of Purdue university in chemical engineering, he came to Phillips' then-new Philgas division in 1928, with a background of valuable experience in oil production, machine shop work, coal mining and automotive sales experience.

Throughout his career in the sale of LP-Gas, Mr. Campbell has specialized in retail sales activity, merchandising, financial management, and sales promotion of gas and gas appliances, and has authored articles for company and trade press on those subjects.

Metal Home Fabricator Installs LP-Gas Standby

Lustron Corp., builders of all metal prefabricated homes in a large modern plant at Columbus, Ohio, normally use natural gas in their enameling furnaces. To insure against production interruption on natural gas curtailments, H. Emerson Thomas and Associates, Inc., of Westfield, N. J., specialists in LP-Gas contracting and engineering, have recently completed an LP-Gas system under a "turn-key" contract.

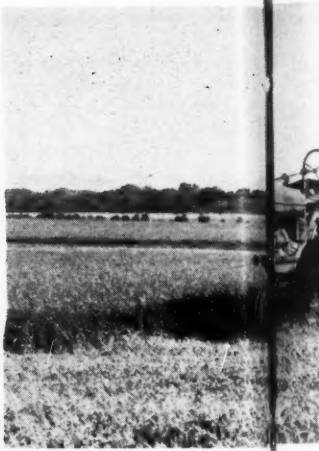
This system comprises 240,000 gallons of propane storage and the mixing equipment is designed to make a propane-air mixture interchangeable with the natural gas.

This standby LP-Gas plant not only insures the continuous plant production but also is an important labor relations factor in maintaining employment during curtailment.

L. C. Parker Resigns From Louisiana Butane Dealers Assn.

Word has been received that L. C. Parker, who has long served as executive secretary of the Louisiana Butane Dealers Assn., has announced his resignation, effective Dec. 31.

It has been stated that the limited membership of the association does not now justify the employment of a fulltime executive secretary.



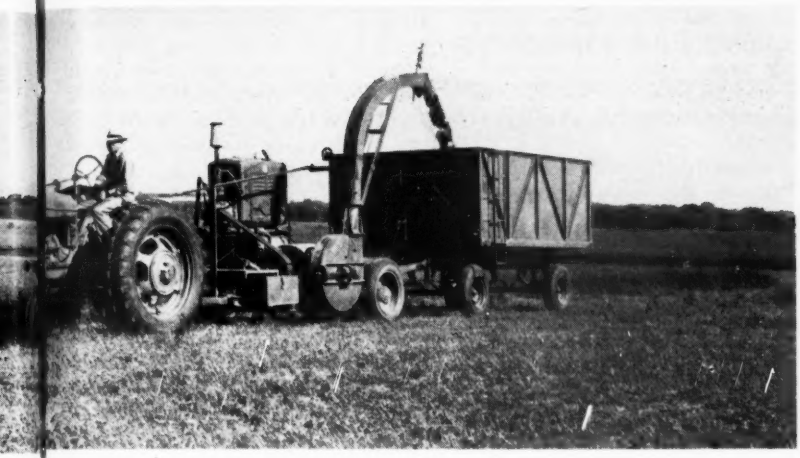
POWER

GAS PLAYS MAJOR ROLE I AR

By O. D. HALL

FEW would think of liquefied petroleum gas and natural gas playing an important part in making poultry and livestock fat and healthy. But these fuels are doing just that in furnishing the power for harvesting and dehydrating alfalfa from the broad fields of Kansas, Nebraska, Texas, Oklahoma, Ohio, Missouri, California and other states.

These gases, abundant and relatively cheap in those states, contribute a lion's share to the manufacture of 600,000 tons of dehydrated alfalfa meal produced annually in the United States. Alfalfa, generally recognized as a valuable feed product when cut and dried in the fields by older methods, retains more of its vital nutrient elements, such as vitamins "A" and K," protein, riboflavin and nicotinic acid, when dehydrated in modern alfalfa mills, the quicker and more econom-



E HARVESTING ALFALFA

ical way, by use of liquefied petroleum and natural gases as fuels for power.

The average time for drying a ton of alfalfa, when cut and chopped, is reduced from 48 hours, under older processes, to 60 minutes under gas dehydration. The meal comes out with an average of only from 5% to 7% moisture when dehydrated the gas way, compared to an average of 15% when dried in the field. Risks from losses due to bad weather are reduced to almost zero and, due to quicker and otherwise more efficient dehydration with gases, deterioration of the product by exposures to weather in the field, are eliminated.

The desirable goal of balancing the summer and winter loads is advanced by the stepped-up market for gas to be used in dehydration processes. Also from the standpoint of the companies and their employes, great advantages result from furnishing year-around employment for personnel.

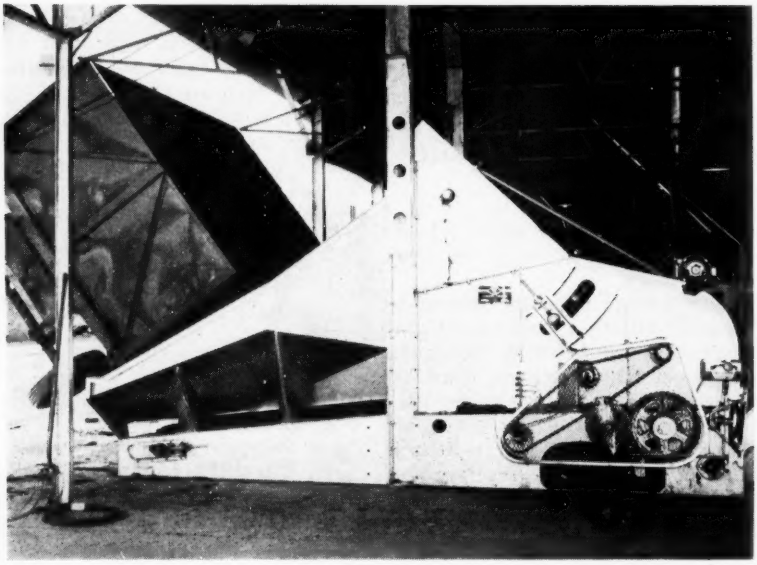
The average season for harvesting and drying alfalfa the gas way is six months, while in Kansas and

TOP (left): F. N. Havens, vice president, Union LP-Gas Systems and Valley Alfalfa Mills, in his office at Independence, Kan. RIGHT: Equipment used in harvesting alfalfa. "Farmall" model "M" tractor is pulling WJS harvester and trailer.

some of the other states of the Middlewest and Southwest, it extends from April to November—the months when markets for LP-Gas and natural gas are lightest and when a greater supply of LP-Gas is available.

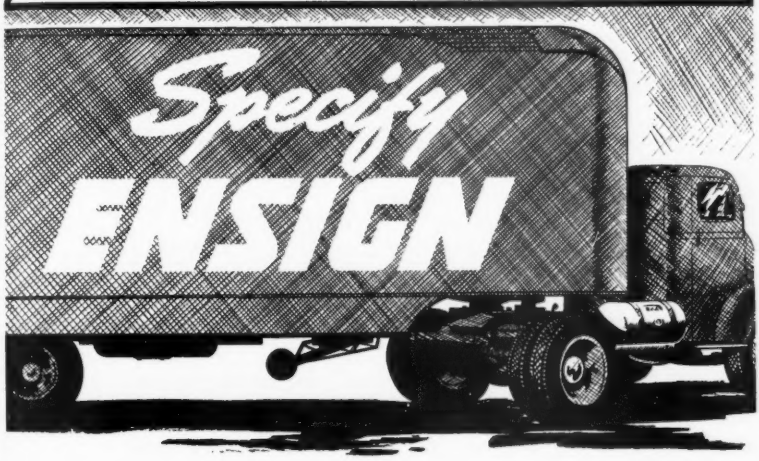
One of the largest operations (fourth largest in the United States) in dehydration and manufacture of alfalfa meal by use of gas, is centered at Independence, Kan., headquarters of Midland Industries, Inc., and its associated companies, Elk Valley Alfalfa Mills Division, Union LP-Gas System, Inc., Union Appliances Division, Glencliff Services, and others which operate the non-utility activities and Union Gas System, Inc., a public utility which transports to and distributes natural gas in 39 towns of Kansas and Oklahoma and which also has some gas production in those states.

Organized in 1940, the Elk Valley Alfalfa Mills Division, when there were only three such companies operating in Kansas, started with one alfalfa meal mill in Independence. It now has doubled the capacity of its Independence mill and is also operating such units at Leroy, Emporia, Fredonia, Neodesha and Longton, in Kansas, and



Here the alfalfa reaches the mill, is dumped sidewise alongside the automatic feeder and conveyed into dehydration dump.

For *DEPENDABLE* CARBURETION



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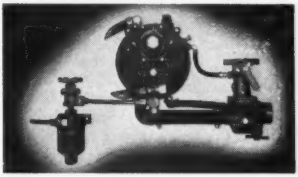
We at Ensign pioneered the field of industrial engine carburetion including Butane-Propane, the finest of motor fuels, and our experience goes back over 35 years. We learned how to get the most power and economy out of the fuel with the greatest dependability and service to the user.



Send for bulletin, "The ABC's of Butane-Propane for Engine Use"

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"Pioneers in Efficient Carburetion" • Established 1911

at Blackwell, Okla. Production has grown from 7634 tons in 1941 to 17,578 tons in 1948. Last season the mills did a gross business of about one million dollars. The firm will start the next season with an annual production capacity in excess of 22,000 tons of alfalfa meal.

The company has found it advisable to warehouse approximately half of its production each year, due to the normally better price during the winter months. This also allows the company to take care of its customers' requirements 12 months a year. The company has about 12,000 tons storage capacity. Its largest market is in 22 states in this country, principally to the north and east. Its steady accounts are located in 13 states, with the largest accounts located in New England. Manufacturers of poultry and livestock feeds are the principal purchasers of the product.

With the aid of modern harvesting machinery furnished by the manufacturers, the harvesting of alfalfa has been reduced to a comparatively simple process. One man can handle the entire field operation, assisted by a truck driver to haul the loaded trailer to the mill,

After passing through the drum and hammer mill, in right foreground, the alfalfa meal is packaged in 100-pound sacks. Leo Wolk, a sacker, has just removed a loaded 100-pound bag and attached another one for filling.

For Something NEW

in LP-Gas Carburetion

See . . . the New ROADMASTER

The New ROADMASTER Is All New . . . The line includes vaporizer-regulators for engines up to 500 h.p. . . . also a selection of adapter and straight carburetors that will convert any truck, tractor or stationary engine to LP-Gas Write for Catalog with complete information.

- New electric fuel valve gives positive shut-off.
- New Vaporizer - Regulator discharges at controlled pressure . . . not sub-atmospheric.
- Simple Carburetor Adapter is venturi type . . . employs one fuel load adjustment; fits standard air horn.

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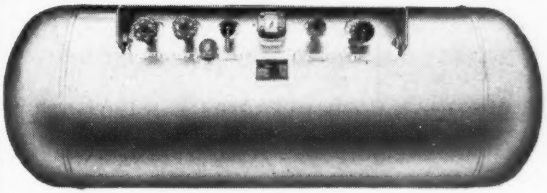

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. . . who used DIX LP-Gas carburetion units to help balance their fuel load in 1948.

Have you investigated the possibilities of truck and tractor conversions in your area? There are chances everywhere to build a better summer load with LPG carburetion.

It will pay to investigate . . . Write for the DIX Catalog on carburetion and start planning NOW.

Dix Manufacturing Co.

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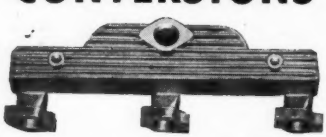
FOR BETTER CONVERSIONS



Make every conversion a better installation by using an Ellis Manifold designed especially for LP-Gas. Your customers will find they get more power and mileage . . . and you will get more customers.

Ellis "Bu-Power" Manifolds have been tested and proven by hundreds of successful installations.

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empty it and return it empty to the harvester. When loaded it is replaced by an empty trailer behind the harvester. In addition, only three men are required to work the milling operations. However, larger numbers are required to handle the warehousing, maintenance, shipping and various administrative details.

The large repair shop at the mill in Independence handles all repairs and the making of new parts for the company's other five mills. It carries a stockpile of over 2500 items of spare parts. The mill operates more than 100 pieces of equipment on rubber.

Propane for Field Operations

Natural gas supplied from the lines of Union Gas System, is used as the fuel for operation of the alfalfa dehydration processes at the mills. Propane gas is used as the principal fuel for the field operations. The use of these fuels enables the company to produce high-grade alfalfa meal for a cost of approximately one-third less than would be possible with other fuels, such as gasoline, coal and oil.

Equipment in the field includes a "Farmall," Model M, tractor pulling a WJS field harvester manufactured at Neodesha, Kan. Two 100-pound propane bottles sit in front of the driver of the tractor to furnish power to pull the harvester and to power the take-off for the cutter-bar on the field harvester. Propane also powers the 1-ton Ford truck which, hooked to the trailer,

hauls the chopped forage to the mill and returns the empties.

Before sending the harvester into the field the company has bought the farmer's stand of alfalfa for the season, which usually means from 3 to 6 cuttings. The harvester cuts, chops and picks up the green alfalfa and blows it into the trailer through a suction fan. The harvester is hauled by a Farmall, Model M, tractor on which are mounted two 100-pound bottles of propane to furnish power to pull the harvester and to furnish take-off power for the harvester.

Two 100-pound propane bottles installed on the harvester furnish power for the 226-6 Red Seal Continental engine which operates the top cutter on the harvester.

The company now has on order a self-propelled harvester known as the "Field Queen," made at Mazie, Kan. This will operate on propane and eliminate the tractor now necessary to pull the harvester.

Haul Crop Eight Miles

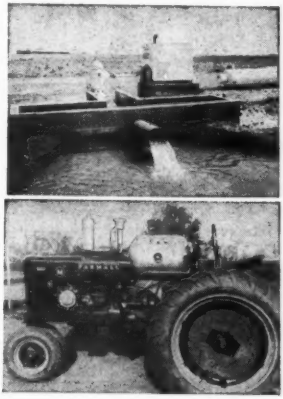
The average haul of the alfalfa from the field to the dehydrating plant is now eight miles. A one-ton Ford truck hauls the green alfalfa to the mill and the trailer load is dumped alongside a Heil Co. A-10 automatic feeder. It is then conveyed into the drum by a chain elevator.

At the inlet of the drum the alfalfa is subjected to from 1600° to 2200° F and from 250° to 375° F heat at the outlet. This removes the moisture which comes off in the form of steam.

Think Now! of Summer

The dealer who includes LP-Gas Carburetion Conversions as a part of his regular service opens up new markets for gas and equipment sales . . . Sales which may mean the difference between profit and loss in summer months.

It's not too early to promote Carburetion in your area. Let ALGAS, one of America's oldest LP-Gas carburetion manufacturers, help you plan your campaign NOW!



Two important load builders are tractors and irrigation engines . . . There are some to be found in every section . . . Get your share with dependable ALGAS CONVERSION UNITS.

BUTANE ALGAS PROPANE

AMERICAN LIQUID GAS CORPORATION

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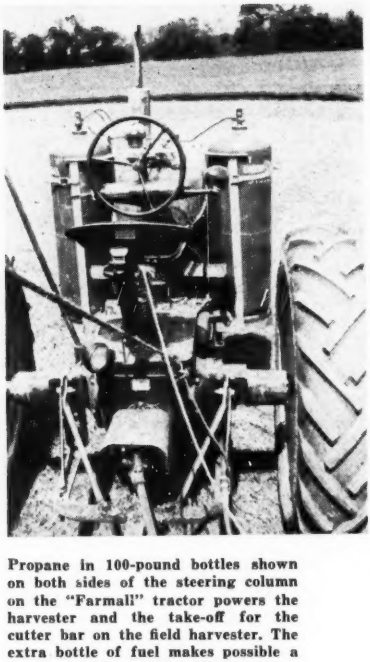

Propane in 100-pound bottles shown on both sides of the steering column on the "Farmall" tractor powers the harvester and the take-off for the cutter bar on the field harvester. The extra bottle of fuel makes possible a continuous operation.

A 60 hp Waukesha gas engine is used with a V-belt drive in pulling the suction fan and rotary-type drying drum. A 150 hp model Waukesha gas engine drives a Hammermill at 2400 rpm to complete the pulverization after dehydration. The alfalfa meal then reaches the sacking chute and the sacker places it in 100 lb bags.

Next season some of the meal may be packaged in 50-pound paper bags. Because of high moisture content it takes approximately three tons of green hay to make a ton of meal.

Each dehydrator has a capacity of 6000 pounds of water evaporation per hour, or approximately one ton of finished production per hour.

New Type of Vaporizer

The propane gas that is used in the field is hauled there in 100-pound cylinders. Liquid withdrawal valves were eliminated from these bottles by the use of a hot water pad which is installed so that the bottle sits directly on the pad. Hot water from the radiators is circulated through this hollow steel pad giving a little heat so that the propane will vaporize a little faster during the cool nights of late fall. This system, designed by engineers of the company, also eliminates a vaporizer formerly used in propane carburetion.

The company is just getting a good start in the use of propane as a summer load builder in the dehydration of alfalfa for meal. Last season, which ended in November, 1948, was the first in which the company used propane on most of its mobile equipment in the field. The company used approximately 45,000 gallons in this processing from April to November. This load may be stepped up to 60,000 gallons next season.

The sale of propane in the overall operations of Midland Industries, Inc., and its associated company Union LP-Gas Systems, Inc., last year was more than 2,000,000 gallons. The latter company was organized to sell LP-Gas in rural

areas, so that Union Appliances could distribute appliances to LP-Gas dealers as well as to natural gas appliance dealers.

The company is now in the process of converting from gasoline to all-propane operation. This conversion is based on experiences showing that cost of propane power is cheaper than gasoline when applied to the company's field operations. Average cost for power and fuel last season of two plants using straight gasoline was $1.59 a ton. The average cost for power and fuel for field equipment (not including trucks), on propane operation was $1.23 a ton.

Natural gas is used exclusively in the dehydrating process at the mills. This gas costs an average of 20 cents per 1000 cubic feet and has about 1000 Btu's per cu. ft. heating efficiency. Approximately 180 million cubic feet of natural gas are used in a season at the alfalfa meal mills.

It is fed into the dehydration equipment at 15 pounds pressure and is cut down to 4 ounces on motors. All the alfalfa mills are located on Union Gas System lines just outside the city limits.

Use of natural gas for alfalfa dehydration at the mills has also served the useful purpose of building up the summer load for the natural gas utility.

Principal officers of the companies which operate the alfalfa mills, viz., Midland Industries, Inc., and Elk Valley Alfalfa Mills, are: Paul R. Johnson,* president; R. P. Johnson, vice president and general manager, alfalfa meal division; H. F. Johnson, vice president; H. F. Mitchell, treasurer; D. W. Stewart, secretary, and Phil Payne, engineer, all of Independence.

Two 100-pound bottles on the harvester power the top cutter on the harvester by fueling the Continental engine shown at the rear of the cylinders. The top cutter chops the mown alfalfa and the forage for transportation to the mill.

Officers of Union LP-Gas System which sells the propane to the Elk Valley Alfalfa Mills, are: H. F. Johnson, president; F. N. Havens, vice president; Leo Callahan, treasurer, and D. W. Stewart, secretary.

*Since this article was written, Paul R. Johnson has died.—Ed.

Missouri Dealer Gets Best Prospects At Picnics and County Fairs

By MYRA HILDERBRAND

A HIGHLY effective means of obtaining "hot prospects" for LP-Gas appliances and systems is complete displays at county fairs and picnics, according to Gene Schneider, head of Gene Schneider Refrigeration Co., LP-Gas appliance dealer in Jefferson City, Mo.

The 18-year-old Schneider organization, which covers a huge rural territory amounting to five counties surrounding Jefferson City, is a regular exhibitor at fairs and picnics, where Mr. Schneider feels the best opportunity for contacting hundreds of prospects exists.

Gives Service for Booth Space

Under the plan developed, the Schneider appliance dealership receives space for a complete appliance display and booth for salesmen, in return for which the company supplies bottled gas cooking equipment for sandwich meats, frankfurters, hamburgers, etc., served at the fair. A complete stock of portable ranges is maintained in the headquarters shop, ready to be hauled out in one of Schneider's service trucks, and set up for efficient service.

Mr. Schneider also regularly donates appliance prizes for attendance drawings, and reports that several given away during 1948 brought in hundreds of prospects who were sold during following months. Prizes have included refrigerators, ranges, water heaters, etc.

Such fairs are a fine opportunity to acquaint the farm market with the dealership, Mr. Schneider has found. His firm, in all phases of the appliance field, with commercial refrigeration, gas heating, home appliances and service, is currently operating 14 trucks, and a crew of 12 appliance servicemen, who travel distances up to 120 miles in maintaining customer appliances.

Train Servicemen to Sell

Each of the service mechanics has been put through an intensive training school consisting of twice-monthly sales classes held in the Jefferson City headquarters, and is instructed to look for sales possibilities while making service calls. Each man earns a worthwhile commission on all appliances he sells, and can often equal his service salary through "good prospecting."

Cooperating with the service crews are nine specialty salesmen, who follow up the leads obtained from fair appliance displays, newspaper and radio advertising as well. Each man is assigned a huge slice of central Missouri as his territory, and is responsible for all leads originating in that area. By furnishing each salesman with car and gasoline, and dispatching them on prospect calls of 100 miles or more, the Schneider organization has been successful in selling LP-Gas equipment over most of the central state.

"...and for '49..."

WILSHIRE
heaters
A wonderful future is in store for LP-Gas dealers who sell Wilshire Heaters. A future of customers' satisfaction, good profits and the pride of selling the best.
Order from your jobber.

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Summer Selling For Winter Heating

By GENE CREIGHTON

THERE is no substitute for "getting out and ringing doorbells" to make a success of selling LP-Gas furnace conversion units during the summer months, according to W. M. Ward, head of Public Bottle Gas Co., Englewood, Colo.

In addition to ordinary summer advertising campaigns on gas refrigerators, ranges, heating appliances, etc., Mr. Ward has been specializing in LP-Gas and natural gas burner conversion units during the summer of 1948. He has replaced many coal-fired central heating systems since April of last year, when he took over the former Selby Heating Service in this Denver suburb, and incorporated it into a bottled gas and appliance distribution business.

Has Scientific Selling Methods

Mr. Ward who, incidentally, was a banker before going into gas retailing, has applied "banking methods" to summer conversion burner merchandising. First, he hired and trained an outside salesman, who spends all of his time ranging from house to house in the semi-rural and farming districts south of Denver in search of active conversion burner prospects. "While butane and propane gases are relatively familiar to rural residents today, there are still many who know little or nothing about their heating possibilities," Mr. Ward said. "Therefore, we consider every call made on a farm home owner or suburban resident well worth while from a missionary work standpoint. On every call, our salesman carefully explains the advantages of instantly-available gas heat, whether from the city mains or LP-Gas bottles, invites the customer to check with neighboring customers from a long list of installations previously made, and leaves the house either with a sale, or with the satisfaction of knowing that the customer now thoroughly understands the possibilities of automatic gas heat."

Averaging between five and eight calls per day, the outside salesman uses as a "clincher" the advisability of installing heating conversion units during the summer months, to "beat the winter rush." With farm incomes at an all-time high in the area, gas conversion unit sales have come with surprising ease, according to Mr. Ward. "Our most difficult problem, that of demonstration, we have solved by using a complete list of satisfied users in the territory, to which the salesman refers when giving his selling talk," the dealer said. "Invariably, there will be someone on the list whom the prospect knows—and personal endorsement by a friend is one of our most valuable selling assets."

The conversion burner featured by the firm sells at approximately $200 installed. During August, to catch at-

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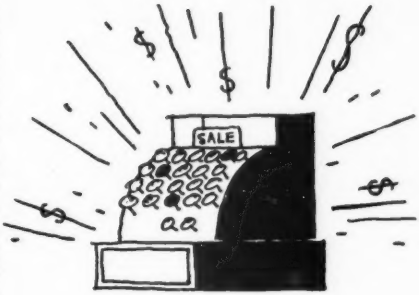
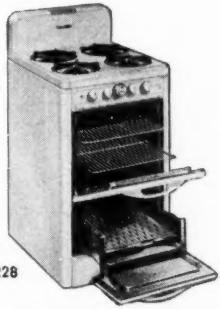
THIS STORY of selling conversion burners in the summer time offers some good ideas to dealers who have prospects struggling with coal and oil heating plants.

It must be remembered, however, that conversion jobs call for good engineering. After a user of other fuels has learned the virtues of gas through a conversion burner, the next logical step is to sell him a new gas unit specially designed for the fuel he is to use —butane or propane.—Editor.

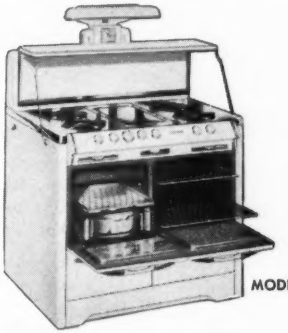
It's to your profit to sell the range women prefer!



the new and finer **O'KEEFE & MERRITT** automatic L-P gas range



MODEL 228



MODEL 4348

More women are making it their business to own the gas range that has more extra and exclusive features. Five sparkling L-P models . . . superbly styled . . . properly priced . . . gives your customers the L-P gas range for their needs . . . ***Write today for details on O'Keefe & Merritt's complete line.***

O'KEEFE & MERRITT CO.

3700 EAST OLYMPIC BOULEVARD • LOS ANGELES 23, CALIFORNIA

tention, Mr. Ward built a handsome window display which showed one gas conversion burner complete, and another broken down to its component parts, grouped in front of a sign which read "Challenge your heating problems with the advantages of forced combustion in this gas conversion burner." Down the sides were listed such advantages as wiping-type burner, AGA tested controls, fingertip heat controls, safety pilot gas shutoff, and a mercury fan switch. Each of these features was listed in a circular "spot sign" with a red silk ribbon leading to the part mentioned on the complete burner, and to the broken-down parts, strung along the window floor. Photographs of burner installations are framed in the display, with small streamer signs reading, "Enjoy the advantages of automatic gas heat with this inexpensive installation," etc.

The result of continuous, aggressive "doorbell ringing" has been a surprisingly large list of installation orders, and much "spadework" toward later winter installations, according to Mr. Ward. Always interested in automatic heating, and in the merchandising of modern LP-Gas convenience to rural residents, Mr. Ward has found his new venture "far more interesting than the banking business" as he smilingly put it.

One Firm Will Distribute Gas Throughout Arkansas

Brownie's Natrural Gas Co., of 219 West Markham St., Little Rock, Ark., has been appointed state distributor for Natrural Liquid Gas and will appoint franchise dealers throughout the 75 counties of the state.

P. C. Brown is company president. C. C. Nichols, district representative, assisted in opening the new firm's place of business.

Mark Anton Adds Flamex Corp. To Suburban Propane Holdings

Mark Anton, president of Suburban Propane Gas Corp., Whippany, N. J., has announced the purchase of Flamex Corp., of Chili Center, N.Y., and its retailing outlet, Dave's Flamex Co., Inc. The two properties, which serve approximately 5000 propane gas customers in the rural and suburban vicinities of Rochester and Buffalo, will be merged and operated as a subsidiary, Mr. Anton stated.

MARK ANTON

The Flamex transaction was negotiated with the administrators of the estate of David Bierbrauer, who founded Flamex in 1941. Mr. Bierbrauer was killed last summer in a train accident. His brother, Gordon, has been appointed by Suburban Propane to operate the new subsidiary.

Operates Over Wide Area

Suburban Propane Gas Corp. operates in nine Atlantic Seaboard states. It was formed in 1945 to combine the Eastern liquefied petroleum gas retail properties of Phillips Petroleum Co. with those of Suburban Gas Co. In 1946, Suburban Propane acquired the Eastern Shore Gas Corp. and the Chesapeake Gas Co., both operating in the Delaware, Maryland and Virginia areas. Liquefied petroleum gas interests of Southern States Cooperative, of Richmond, Va., were added last October. Acquisition of Flamex now extends Suburban Propane's activities into western New York state.

NOW—GREATER SAVINGS ON FAT COSTS!

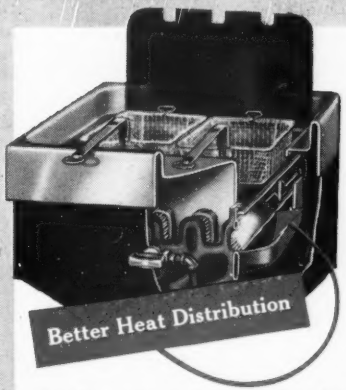
More and Better Fried Foods Faster!

GARLAND

Improved low priced Deep Fat Fryer delivers sensational performance!

Customers can hardly believe there could be such a difference in fryer performance. And when they compare the quality—get the *lower price*—they know their *best buy is Garland.*

GARLAND
Deep Fat Fryer
No. 14-00



Actually, a greater amount of heat is applied to the four tubes in the fryer bowl. But because the heat is so evenly distributed over the tube area, fat is not subjected to extreme "spot" heat. Fat stands up longer. Cold zone temperature is considerably reduced.

The Garland line leads in *sales* because it leads in *value*—and because it is consistently advertised in every field using commercial cooking equipment. All Garland units are available in stainless steel and equipped for use with manufactured, natural or L-P gases.

Approved by the American Gas Association

GARLAND*

THE TREND IS TO GAS FOR ALL COMMERCIAL COOKING

Heavy Duty Ranges • Restaurant Ranges • Broilers • Deep Fat Fryers • Toasters
Roasting Ovens • Griddles • Counter Griddles

PRODUCTS OF DETROIT-MICHIGAN STOVE CO., DETROIT 31, MICHIGAN

*REG. U. S. PAT. OFF.

Cedar City, Utah, Operator Incorporates for $150,000

Articles of incorporation for $150,000 by the La Frentz Liquid Gas Co., Cedar City, Utah, were filed recently. Incorporators of the well established company are Fred La Frentz, president, Archie Bess, vice president, Mrs. Evelyn D. La Frentz, secretary - treasurer, Harold Cline, and Sam Cline, attorneys from Beaver, Utah.

BUCK GORDON

Mr. La Frentz, reelected president of the Utah LP-Gas Assn. at the group's December meeting, reports that NBFU Pamphlet No. 58 has been adopted by Cedar City for regulation of the industry. He has been working toward this end for two years. Buck Gordon is the fire inspector for Cedar City.

La Frentz Liquid Gas Co., with many distributors throughout the state, was successful last year in selling LP-Gas installations to the Union Pacific railroad and the Utah Parks Commission for parks, camps, and resorts in the state.

Government Orders Issued Apply to LP-Gas

In an LPGA bulletin issued in January appeared the following items about recent government rulings:

Restriction On Installment Purchases

An amendment to Regulation W. effective Nov. 2, will permit a seller to allow home demonstration of the appliances, which includes household ranges and refrigerators, listed in Group B of the supplement to Regulation W.

A period of demonstration up to 10 days is permitted without the down payment previously required. However, it must be in anticipation of a bona fide installment sale and under a written agreement signed by the customer.

Motor Carrier Safety Regulations

The ICC has further extended until Dec. 31, 1949, the exemptions granted to common, contract or private carriers which have been in effect since Dec. 31, 1943, in connection with the application of Section 197.01 (a) and (b) of Part 7 of Motor Carrier Safety Regulations, Revised, covering the transportation of explosives and other dangerous articles.

This order postpones for another year the effective date of the Order of April 20, 1943, by continuing the waiver of compliance with certain requirements for cargo tank specifications, vehicle brakes and labels. In issuing this extension, the Commission stated that the conditions which necessitated the original exemption still exist.

Warren Petroleum Corp. Buys Illinois Bottled Gas Co.

Announcement has been made that the Warren Petroleum Corp., Tulsa, Okla., has purchased the extensive holdings of the Illinois Bottled Gas Co., Chicago.

No change is planned in name, management policies, or the top personnel of the Illinois Bottled Gas Co. B. D. Geroy remains as president and a director, and Walter H. Miller will continue as vice president.

The distributing company has several hundred retail outlets.

An Honored Name in the Gas Appliance Industry for FIFTY YEARS

Lawson

Lawson's leadership in gas appliance manufacturing is based on much more than long experience. In design, workmanship and actual field performance, each Lawson product is an individual leader and measures up to the highest standards of quality.

Lawson appliances are specially designed for the type of fuel to be employed. They bring to the bottled gas user the finest water or space heating service that engineering skill and manufacturing experience can produce.

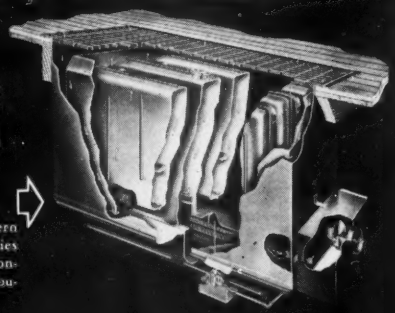
Specially Designed for use with L.P. Gas

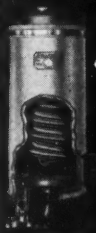
AUTOMATIC GAS WATER HEATER

Smart design and finish. Completely automatic with full safety pilot controls. Thick Fiberglas insulation. Built with controls concealed or exposed. Available with 10-year guaranteed Dec-a-due tank.

GAS FLOOR FURNACE

Efficient circulating air heating system with modern room temperature controls, if desired. Occupies minimum space below floor. Complete safety controls. Available in 3 sizes with 35, 50 or 65 thousand B.T.U. input ratings.





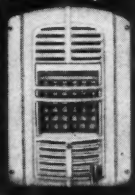
COPPER COIL WATER HEATER

Simple operating double coil heater for use with 30-40 gallon range boiler. Thick Fiberglas insulation. Supplied for manual or automatic operation. Coils easily replaceable.

GAS & ELECTRIC Lawson APPLIANCES

WALL INSERT HEATER

Compact radiant wall heater provides both circulating and radiant heat for bath or other small rooms. Manually operated. Safety clothes guards. Sparkling white enamel finish.



Lawson MANUFACTURING COMPANY

300 NORTH LEXINGTON AVE. • PITTSBURGH 8, PA.

Domestic Gas Range Sales Continue to Advance in 1948

According to a Jan. 10 bulletin issued by Edward R. Martin, chief statistician of the Gas Appliance Manufacturers Assn., domestic gas range unit shipments during the 10-month period ending Oct. 31, 1948, were 20.9% greater than during the similar period of 1947.

Shipments of domestic gas ranges for use with liquefied petroleum gas amounted to 25% of the total shipments during this same period. For the entire year, 2,800,000 ranges were sold, of which 728,000 were for use with LP-Gas.

On last Oct. 31, according to the reporting companies (70% of the industry), unfilled orders for ranges totaled 220,928 units. The total number of all gas ranges shipped in the first 10 months of 1948 was 1,943,173. The value of these ranges was $187,289,000.

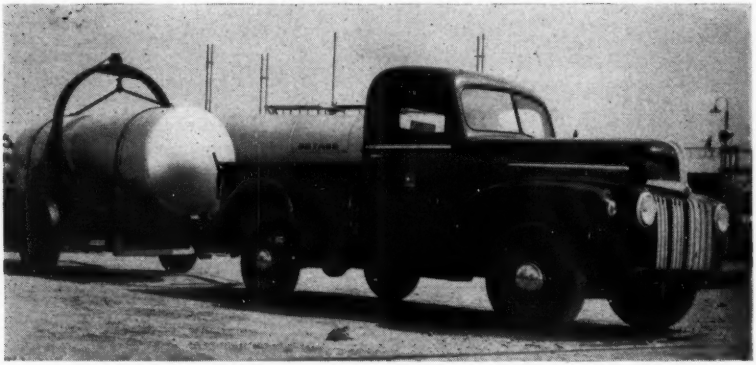
With 96% of the industry reporting, the first 10 months of 1948 showed unit shipments of water heaters at 17.4% below shipments during the same period in 1947. Of the total, approximately 12.5% were for use with liquefied petroleum gas.

During 1948 up to Oct. 31, reporting companies shipped 26,957 gas conversion burners to the gas industry.

Virginia Butane Town Plant Applies for Rate Increase

The Southwestern Gas Co., which holds the franchise to serve butane gas for local commercial and domestic use, has made application with the State Corporation Commission for a 12% increase in rates, effective Feb. 1, for Martinsville, Va.

The company in its application, stated that it will be the first advance in rates in 12 years.



Handy tank trailer operated by Lone Star Gas Co., Dallas.

A PLUG-IN GAS CONTROL PACKAGE

WITH THE NEW "TIME MODULATION" THERMOSTAT

FOR FLOOR FURNACES • SPACE HEATERS • GRAVITY FURNACES AND BOILERS

LOW INSTALLATION COST
•
TIME MODULATION CONTROL
•
QUIET VALVE
•
NO LINE VOLTAGE WIRING
•
UNDERWRITERS APPROVED TRANSFORMER
•
PRICED TO SELL
•
HANDLES HIGH SULPHUR GAS
•
MODELS AVAILABLE FOR L-P GAS WHEN SPECIFIED

NOW you can have the new "Time-Modulation" Thermostat as standard equipment in every "Plug-In" gas control package. For the first time you can now give your customers the temperature control advantages of modulated firing with *your* on-off type burner.

In addition, the "Plug-In" Package brings you powerful sales features:

- The highest standard of comfort and convenience for floor furnaces, space heaters, gravity furnaces and boilers.
- Easy installation: simply plug in the Underwriter's approved transformer to any line voltage outlet. All wiring is low voltage and installation cost is reduced to the minimum.
- The new Honeywell quiet gas valve . . . acceptable to all markets.

Investigate all the remarkable new features of the "Plug-In" gas control package. Get all the facts at once. Write Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Leaside, Toronto 17, Ontario.

MINNEAPOLIS **Honeywell** CONTROL SYSTEMS

PRODUCTS

Domestic Range

Florence Stove Co., 205 School St., Gardner, Mass.

Model: No. 4721.

Description: This is one of two new additions to the Florence registered line of domestic ranges, featuring the patented waist-high "Broilercue." Model 4321 has the low broiler.

Broilercue models, with both divided and united top burner groupings, are actually 2-oven ranges. Among other features of the line are one-piece turret tops finished in acid-resisting porcelain enamel; extra large baking ovens; "C-Quik" gas cock handles which show cooking speeds separately.

All top burners have "Hi-Lo" control with a fixed simmering flame. Optional accessories are available for all models, except deluxe ranges which have a built-in unit with top light, combination electric clock and time reminder, utility outlet, and condiment set.

Regulator

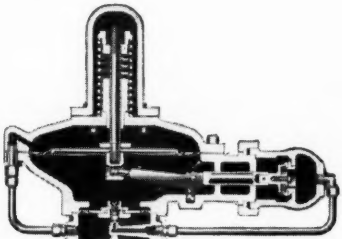
Fisher Governor Co., Marshalltown, Iowa.

Model: Fisher Type 99.

Application: Designed so that operator can serve various installations with only one regulator.

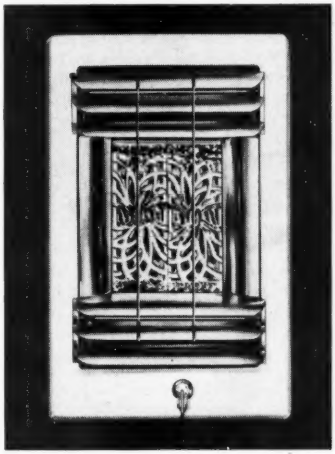
Description: This multi-purpose gas pressure regulator is said to be extremely stable in operation over its entire pressure and volume range.

The regulator is available in 2-in., screwed pipe thread connections only, and is suitable for inlet pressures up to 150 lbs. and reduced pressures of 4 oz. to 50 lbs. The capacity range is from zero to 143,000 cu. ft. per hour. Due to special internal con-



struction and pilot construction, it is able to maintain a constant reduced pressure on all flows in its capacity range.

A Fisher bulletin, No. P-99, fully describes and illustrates the new regulator and contains data on capacity, regulation, pressure ranges, etc. It may be obtained by writing Fisher Governor Co.



Wall Heater

Chattanooga Implement & Manufacturing Co., Chattanooga, Tenn.

Model: Royal No. 202.

Application: Suitable for installation in kitchens, bathrooms, dining space, playrooms, utility rooms, and many other small space areas.

Description: Made to comply with AGA Testing Laboratories' requirements for operation on LP-Gas, natural and manufactured gases. Air is drawn in through lower louvers, heated, and directed out through upper louvers. This operation not only directs heat where it is needed but helps to keep the wall clean above the heater.

The economical, recessed heater fits flush to wall surface. It is finished with Dupon Dulux baked-on enamel which stays cool and white and is easy to clean. The heater has a safety dress guard across heating surface.

Armco aluminized steel is used on the inner unit and heat-directing louvers making them tarnish- and corrosion-resistant. The Royal burner assembly is cast iron with drilled, raised ports. Interchangeable radiants are used.

Domestic Range

Supermatic Products Corp., 500 S. Flower St., Burbank, Calif.

Model: No. 404-XGLSW.

Description: This model is one of the Series 400 of Supermatic ranges which is equipped with a stainless steel cook-top, heavy cast aluminum center griddle, infra-red glow oven,

and an extra large baking oven. It has complete 100% automatic shut-off on safety pilot and automatic ignition.

The use of "Pyroflo" burner grates makes it possible to cluster three or four pots or pans on any one of the four top burners without tipping. The Pyroflo grates provide a semi-solid top directly over the burner and flush with the rest of the grate.

Other equipment on the 404 includes a smokeless broiler, recessed toe panel, lamp, and electric cooking signal and thermostatic oven control. This range is 40 in. long and 25 in. deep, and measures 36 in. from floor to cooking top.

Another feature is the special manifold panel which provides cool control knobs. The griddle fits into a special compartment in the utility storage drawer.

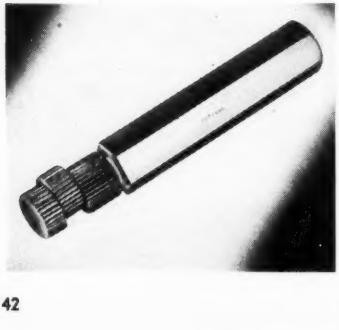
Internal Pipe Wrench

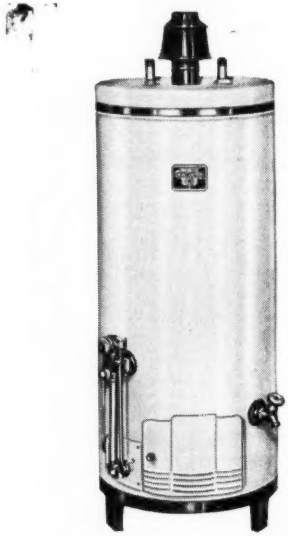
Kiener Machine Products Co., 1313 N. Mission Rd., Los Angeles.

Model: Roddick.

Description: The wrench is constructed of high grade tool steel in sizes for ½-in. and ¾-in. pipe, and comes in two lengths, 4 in. and 2¼ in.

When inserted in the pipe or nipples, the center serrated section swings cam-like to engage the inside of the walls, gripping them and providing holding power similar to pipe wrench jaws. The internal pipe wrench may then be revolved in either direction by a crescent or monkey wrench.





Water Heater

Waldorf Heater Co., 1421 Chestnut St., Philadelphia, Pa.

Model: WA-8.

Application: For domestic use.

Description: Designed to give higher recovery and retain the high efficiency of the Waldorf line.

Sizes: 20, 30 Tall, 30 Short and 40 gallon with recoveries from 20.4 to 42.0 gallons per hour. Available for LP-Gas and propane-air gases.

One feature of the new heaters is a new, large door of modern design

to permit easy access to burner and pilot. It has a specially designed inner door to prevent products of combustion from discoloring jacket and overheating outer door.

A new improved circular slot, bunsen type, cast iron burner, designed for greater capacity and combustion efficiency. The pilot position is fixed in relation to the burner part and can be easily adjusted through the front door of the heater. A balanced-pressure combustion zone, designed to provide a neutral pressure in the combustion chamber, prevents spillage of flue products around mixer and door opening. A larger mixer face is used to assure an optimum of primary air. Minimum of free air opening under heater reduces standby loss and adds to efficiency.

All heaters are equipped with Grayson Unitrol "A" thermostat and 100% safety pilot control. Heaters may be equipped with Magnedur protection (anodic magnesium rod) at slight additional cost; heaters so equipped carry a 10-year protection guarantee on tank. A new descriptive catalogue sheet is available upon request.

Conversion Burner

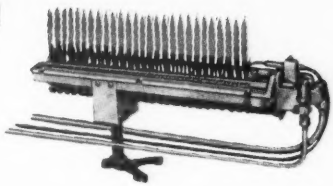
Heatbath Appliances, Inc., Springfield, Mass.

Model: Luminous Flame Range Burner.

Application: For range burner conversions.

Description: The burner comes as a package unit including burner, pilot, baffle frame, supporting standard, fittings, pilot tubing, shutoff cocks, safety pilot, and snap action thermostat. It may be installed in any type of range.

The burner is a fin-type, all aluminum unit with aluminum castings made for lightness and resistance to



corrosion. The fin-type construction allows built up heat to be dissipated rapidly through the wide fin area, resulting in a cool operating burner.

According to the manufacturer, the burner operates on all types of gas. When changing to another gas, a change of orifice is all that is necessary. The burner can be adjusted to operate as a full luminous unit or the luminosity can be varied through the adjustment of the air shutter under the burner orifice.

Domestic Range

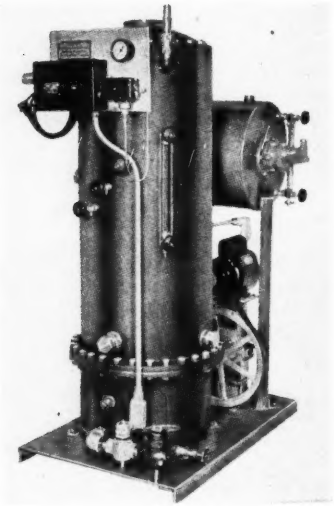
J. Rose & Co., Inc., 68 Jay St., Brooklyn, N. Y.

Model: Royal Rose No. 484.

Description: The structural features and balanced design are combined

with the divided top in this new Royal Rose model. It has an input rating of 16,000 Btu per hour on the oven which measures 16 in. x 14 in. x 19⅝ in.

The range is equipped with "Centro-ficient" burners and "Vari-trol" valves.



Steam Boiler

Alert Engineering Products Co., 315 W. Woodbridge St., Detroit, Mich.

Model: Alert Automatic.

Application: A boiler for every steam purpose.

Description: The gas-fired, automatic boiler is a packaged unit with trimmings, burner, controls, pump and receiver permanently attached in proper positions and piped up with strainer, shutoff and check valves.

The jet-type gas burner is suitable for LP-Gas, natural and manufactured gases.

In case of fuel supply failure, an automatic control valve shuts off and must be reset manually. A safety low water cut-out is also included which shuts off the gas burner if the water level in the boiler becomes too low. The automatic boiler feed system maintains a uniform water level in the boiler by controlling the operation of the motor driven, heavy duty feed pump.

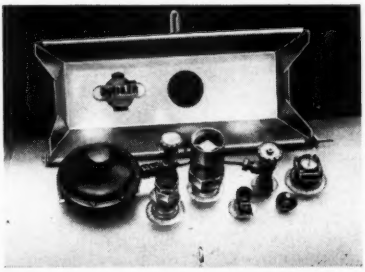
The receiver tank is for both the condensate return and fresh water make up. It contains a built-in float valve to admit fresh water as needed.

Fitting Arrangement for Tanks

Buehler Tank & Welding Works, 5000 Pacific Blvd., Los Angeles.

Description: Filler valve, vapor return and outage valve are positioned on label side of the tanks directly in front of the operator. With this arrangement, greater accessibility for servicing is assured. Reaching over the tank during filling is eliminated.

The guard box, large enough to enclose all fittings, opens away from the three service valves. A new, universal-type regulator bracket has been designed by Buehler to fit principal makes of regulators. The bracket is pivoted so that the regulator may be positioned for easy



alignment with the POL valve, then locked in place on the tank by tightening one bolt.

The magnetic float gauge is also located inside the guard box. It may be read through the end opening without unlatching and raising the guard box. Provided is a ¾-in. plugged liquid withdrawal pipe in addition to the liquid purging pipe connected to the filler valve. A drain plug is provided at the bottom of all Buehler horizontal tanks. Safety relief valves are also provided.

The above improvements are going into effect immediately on Buehler 499, 575, and 1150-gal. LP-Gas plants.

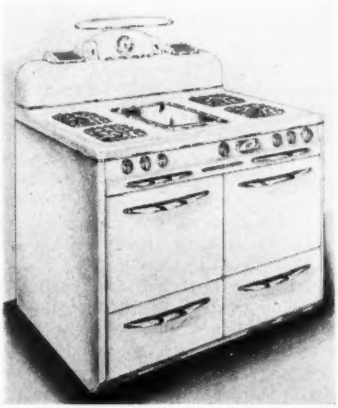
Domestic Range

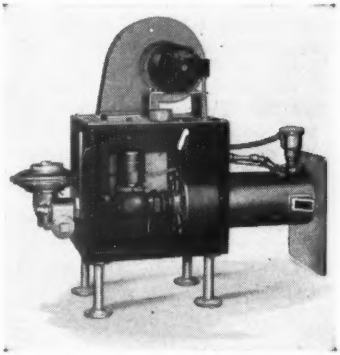
Utility Appliance Corp., 4851 S. Alameda St., Los Angeles.

Model: No. 999G.

Description: The 999 line is designed for the medium price bracket and comes in two top arrangements and with a low broiler. No. 999G is equipped with a griddle between two sets of burners while No. 999 is without the griddle. Both ranges have a storage compartment and utility drawer.

All models in the 1949 Gaffers & Sattler and Occidental lines are "CP" ranges.





Gas Combustion Assembly

Eclipse Fuel Engineering Co., 783 S. Main St., Rockford, Ill.

Model: "Gas Pak."

Application: This complete assembly is for the automatic and economical firing of many different types of heating equipment such as steam boilers and water heaters; heating plants for schools, factories, etc.; industrial ovens; reel-type bake ovens; air heaters, and similar equipment.

Description: Blower, burner, mixer, safety equipment, valves, regulator, piping and wiring are all self-contained in the packaged assembly.

Entirely automatic in operation, the unit is easily installed and connected to gas supply and electrical connections. Fuel economy is possible due to the ease of adjustment of the burner air and gas input ratio. The

absence of excess air or gas helps reduce fuel cost.

An approved, electronic-type flame failure unit is built in which closes the main solenoid valve instantly in event of pilot flame failure. High efficiency is reported due to precise control of air-gas ratio and Btu input. Quiet operation results from the slow velocity of air draft and the use of a nozzle mixing type burner.

A 4-page bulletin, No. H-25, has been issued by Eclipse which describes and illustrates the unit. Copies may be obtained from the company.

Domestic Range

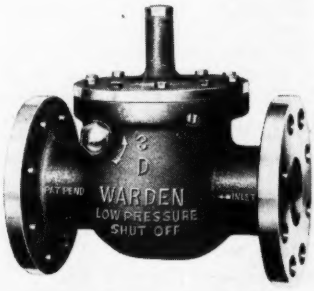
Crown Stove Works, 4627 W. 12th Pl., Chicago.

Model: 838-84.

Description: This is a 4-burner divided-top range with working space between the two sets of burners.

The range is equipped with such standard equipment as one-piece top, oven heat control, slide out broiler, acid-resistant porcelain enamel finish, full flued oven, safety non-tilt oven racks. A fluorescent lamp and precision timer with electric outlet plug are optional equipment.

Two large storage compartments are featured. The burners are of the "two-in-one" type with the simmer feature.



Shutoff Valve

Security Valve Co., 410 San Fernando Rd., Los Angeles.

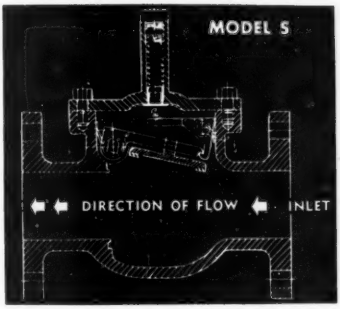
Model: Warden Shutoff Valve.

Application: Recommended for use on gas or fluid lines where closure is desired when pressure fails from any cause.

Description: Positive closure is provided in this new automatic low pressure shutoff valve by the precision lapped synthetic rubber seat. The mechanical action is not dependent on external actuating forces but is entirely self-contained.

The valve must be reset manually after closure. It is easily installed on gas or oil lines for industrial furnaces, public utility systems or any other gas or oil installation.

Valves are set to close at pressure



specified by the customer and are available for high and low pressure use. Warden valves range in sizes from ¾ in. through 8 in.

Domestic Range

Prentiss Wabers Products Co., Wisconsin Rapids, Wis.

Model: Preway No. 48721.

Description: This four-burner range has a 32½-in. x 24½-in. cooking top with non-tilt, heavy gauge removable, porcelain cast iron cooking grate.

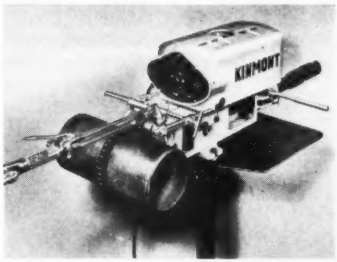
The Preway range has an extra-capacity, leak-proof oven measuring 14 in. x 18 in. x 19 in. Pullout broiler is below the oven. A scientific heat-spreading combination oven-broiler burner is standard equipment.

The oven bottom is removable for easy cleaning.

Cutting Torch Attachment

Kinmont Manufacturing Co., Inc., 716-718 W. Wilson Ave., Glendale 3, Calif.

Application: For use as an attachment to the Kinmont Universal power unit.



Description: The principal features of the attachment are its provision for easy and fast adjustment in handling a wide range of pipe sizes, and its ability to maintain a smooth bevel and a square cut-off across the end of the pipe.

Due to its wide adjustment range it can be used on pipe from 3 in. to 36 in. in diameter and on tanks up to 10 ft. in diameter when turned on a roller rack. Turning speed is controllable while in operation.

A patented, split link chain drive permits rapid fastening and unfastening of the work being turned. The drive chain holds the pipe tightly

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Advanced design hermetically sealed operator eliminates possibility of gummy or foreign matter forming in operator and restricting valve action. K-3H valve provides straight through gas flow and closes automatically upon current failure. Usable with all commercial gases.

K-3H opens and closes gas fuel supply line in response to room thermostats, limit controls or similar devices. Valve adaptable to warm air furnaces, gas-fired boilers, industrial furnaces, conversion burners, and most domestic heating appliances. Available in many voltage variations, with or without manual opening or electric trip, sizes from ¾" to 1¼" I.P.S.

Request bulletin SDL 3R-5 for complete specifications.

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locked in position and turning against fixed rollers of the power unit. Fabrication of pipe scarfed by this method is fast and economical, requiring a minimum of welding time and material.

Packaged Burner Data Sheet

Bulletin 7C describes Bryant "Pow-R-Semblies," packaged gas burner assemblies complete with pressure blowers. It is available upon request to the Bryant Heater Co., Industrial Div., 1020 London Rd., Cleveland.

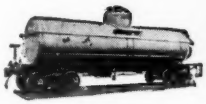
Capacities, specifications, dimensions, and alternative assemblies are described for the units. The "Pow-R-Semblies" are applicable to boilers, air heaters, dryers, kilns, ovens and other equipment to which open burners with controlled flames are suitable. Size range: 400,000 to 6,600,000 Btu per hour output.

More Cylinders Than Ever, But Shortage Still Exists

The U. S. Department of Commerce issued a report in December which included a reference to the cylinder demand by the LP-Gas industry. Stating that these cylinders are still in short supply because of the steel situation, the report adds:

"During 1946 the industry produced some 785,000 liquefied petroleum cylinders. This was accelerated in 1947 to approximately 1,060,000 cylinders, an increase of 35 per cent, but still fell far short of the industry's estimated minimum essential requirement for 1947 of 1.3 million units.

"Even had the full complement been produced during 1947 the industry still would have been operating on an installation basis of 1.4 cylinders per dwelling unit against a normal operating basis of 2.6 cylinders."



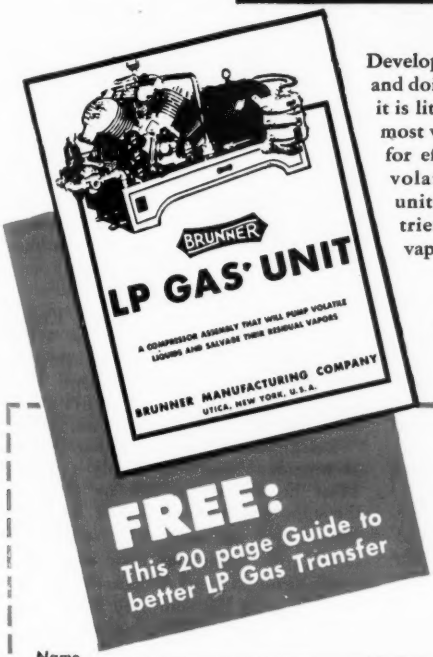
Empty the tank...

the residual gas is a large part of your profits!

BRUNNER

SINCE 1906

TANK UNLOADING UNITS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A COMPRESSOR ASSEMBLY THAT WILL PUMP VOLATILE LIQUIDS AND SALVAGE THEIR RESIDUAL VAPORS
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Developed in the early days of the industry and doing a perfect transfer job ever since, it is little wonder that BRUNNER is the most widely recognized and wanted unit for efficient, safe and fast unloading of volatile liquids and gases. Brunner units leave nothing in the tank—retrieve that last 500 to 1000 lbs. of vapors—a self supporting installation.

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THE TRADE

BRUCE TANKEL

ALBERT WHITE

General Steel Products Co. opened its doors to the LP-Gas industry on Feb. 1 in Dallas, Texas. This new company is owned and operated jointly by Bruce A. Tankel and Albert D. White, both of whom are nationally known to LP-Gas dealers and manufacturers.

The plant is completely equipped with machinery to fabricate all types of pressure vessels, such as butane-propane tanks, refinery vessels, anhydrous ammonia tanks, truck and trailer transport tanks.

A large and modern plant building houses machinery, offices and steel supply at 919 West Commerce St., Dallas. All vessels are manufactured in accordance with the ASME Codes and will receive National Board inspection by W. J. Patton, National Board inspector furnished by Traders & General Insurance Co.

Bruce A. Tankel, one of the two partners of General Steel, was manager of the General Tank Co., East St. Louis, Ill., in 1945, and since that time has served in the capacity of vice president to Butane Equipment Co., Dallas, and McNamar Boiler & Tank Co., Tulsa.

Albert D. White, the other partner, managed the Butane Equipment Co., Inc., for three years, and the Southland Steel Co. for several months. During this time over 35,000 vessels were sold under his direction to LP-Gas dealers.

Mr. White has been active in promoting the use of U-201 domestic systems of lighter weight steel, as well as further development of anhydrous ammonia vessels and equipment. He has always promoted the sales of larger domestic systems and increased storage capacity for dealers in order to relieve the shortage of LP-Gas fuel during winter months.

C. S. Stuckenholt, South Euclid, was elected president of the **W. J. Schoenberger Co.** at a meeting of directors held at the parent company's plant, the Bell Aircraft Corp., at Niagara Falls, N. Y., Jan. 7.

Resignation of W. J. Schoenberger as president was regretfully accepted after he stated he felt he deserved the opportunity to lay aside his business duties and devote himself to his family, his numerous civic and charitable interests and to travel. He had been head of the company since 1922.

Mr. Stuckenholt, a native Clevelander, had been vice president in charge of sales of Schoenberger since 1942. He became affiliated with the company in 1936 after having spent

11 years with the American Gas Association Testing Laboratories.

The Schoenberger company manufactures valves and fittings for gas appliances and air conditioning industries and employs 400. Control of the company was purchased last September by Bell Aircraft.

Announcement of a sales personnel change and the opening of a new district office in the **Peerless Pump Division,** Food Machinery and Chemical Corp., is made by F. E. Fairman, Jr., FMC vice president and Peerless divisional manager.

J. W. L. STONE

J. W. L. Stone has been appointed district manager of a newly formed Peerless sales district with headquarters located at 4330 Leavenworth St., Omaha, Neb. He was formerly a field engineer for the Peerless division in the southwest district. As district manager, Mr. Stone will now supervise the sales of both the Peerless horizontal and vertical lines and other pumps of the company's manufacture. His territory will include North and South Dakota, Montana, Minnesota, Nebraska, Kansas, Colorado and portions of Wyoming, Missouri, Wisconsin and Iowa.

C. Fred Lucas has been appointed general sales manager of **Florence Stove Co.** to succeed Robert H. Taylor who was recently elected president, according to an announcement by Mr. Taylor. Mr. Lucas, who has been sales manager of the Florence Southern division, assumed his new

C. FRED LUCAS

EDWIN A. BAILEY

office Jan. 1, with headquarters at the Gardner, Mass., plant.

Mr. Lucas has had 17 years' experience in sales management and promotion with Florence and with Westinghouse Electric Corp. He joined the Florence organization in 1940.

Edwin A. Bailey, who has been Florence sales representative in the North Carolina territory, will succeed Mr. Lucas as Southern division sales manager with headquarters in Atlanta, Ga.

Before a brilliant assemblage of important Army officials and key figures in industry in December, Albert J. Weatherhead, Jr., president of the **Weatherhead Co.,** was awarded the President of the United States' Certificate of Merit by Stuart W. Symington, Secretary of Air Commerce on behalf of the President. The affair which climaxed a luncheon was held in the South American room of Washington's Hotel Statler.

In offering Mr. Weatherhead this honor, Mr. Symington paid tribute to the Weatherhead Co. and its outstanding services from December, 1941, to August, 1945, in connection with the development and production of aircraft accessories and equipment

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If you require more Butane or Propane Gas than your present contract will supply—
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METERS—PUMPS
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Consolidated Gas & Equipment Sales
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Tulsa, Oklahoma

items which advanced the air supremacy of the Army Air Forces, and proved to be an invaluable contribution to the war effort of the United States.

J. R. CAMERON

J. R. (Jack) Cameron, who has been in the appliance business since 1922, has returned to the Norge division of **Borg-Warner Corp.** as assistant to Harry L. Spencer, director of manufacturing, it is announced by Howard E. Blood, president and general manager.

Mr. Cameron first joined Norge in 1927 and returns to the company after having spent the last four years as manufacturer's agent handling industrial products.

The board of directors of the **Crown Stove Works** announce the election of the following officers: Walter F. Rogers, Jr., president; John J. Collins, vice president-treasurer; John C. Rogers, vice president in charge of sales; Charles J. Rogers, Jr., vice president in charge of production; Mrs. Mary R. Collins, secretary, and Joseph J. Bates, general sales manager.

The Pittsburgh Equitable Meter Division of Rockwell Manufacturing Co. has revealed that Emco tin gas meter cases are now being given a prime coating of zinc chromate as a rust preventative, when customers specify it. This process was devel-

Partial List of Contents

WHAT IS PROPANE? — Supply. Properties. Definitions.

THE BEHAVIOR OF GASES — Pressure. Specific Gravity, Density. Compression.

WHAT GOES ON IN A PROPANE CYLINDER? Construction. Filling.

THE SIMPLE REGULATOR — Design. Problems and Cures.

REGULATOR MANIFOLDS — Service Problems. Multiple Installations.

REGULATIONS — Equipment Selection and Installation. Domestic. Industrial. Safety.

BURNER DESIGN AND APPLICATION — Ports. Orifices. Burner Installation.

APPLIANCE CONVERSIONS — Inputs for Domestic, Commercial and Industrial Burners.

FACTS ABOUT WATER AND WATER HEATERS— The Effects of Water on Heaters. Usage Tables.

TYPES OF WATER HEATERS—Installation. Safety Devices. Efficiency.

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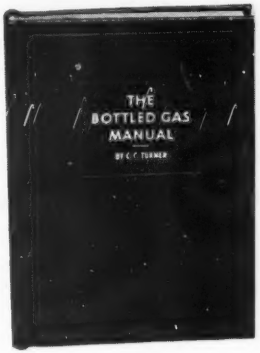
Are you closing the door to future sales by giving incomplete answers to your prospect's questions? Can you compare butane-propane costs and safety with electricity in your area?

BUILD YOUR FUTURE EARNINGS BY LEARNING THE FACTS TODAY. The Bottled Gas Manual provides 352 pages of easy-to-read information on selling and servicing LP-Gas and appliances.



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BUTANE-PROPANE News

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LP-GAS PIPE LINES — Friction. Sizes. Formulas. Charts.

TESTING FOR LEAKS AND ADJUSTING BURNERS — Flame Characteristics. Servicing.

FUNDAMENTALS OF THERMOSTATS — Types. Service. Expansion of matter under heat.

PILOTS AND PILOT CONTROLS — Types. Causes of Failure. Adjustment. Safety Pilots.

SELECTING AND INSTALLING WATER HEATERS — Demand Analysis. High Bill Complaints. Service Problems. Peak Demands.

COMPETITIVE FUELS — WOOD, COAL, OIL. Heat Content. Efficiency. Competitive Figures.

COMPETITIVE FUELS — ELECTRICITY — Rates and Refrigeration. Meeting Electrical Competition.

COMPETITIVE FUELS—ELECTRICITY—COOKING AND WATER HEATING — Operating Costs. Fire Hazards. Relative Merits.

GAS LIGHTING — Law Governing Transmission of Light. Relative Costs. Value to Industry.

SPACE HEATING — Estimated Requirements. Proper Sizes. Types of Heating Equipment.

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RECTORSEAL #2 has a plastic elasticity that remains for the life of the connection. It never hardens . . . never freezes connections. It's not affected by Butane or Propane (liquid or gaseous). It's the favorite for "Leak-Proofing the LP-Gas Industry."

LP-Gas Men know that permanently leak-proof connections are essential . . . save trouble . . . save money . . . prevent danger . . . make every connection safer. They like the new easy-to-use Rectorseal "Brush-Top" cans that assure using just the right amount of seal to prevent waste, as well as trouble.

Ask your dealer or jobber for Rectorseal #2 in the size you need. If he hasn't yet stocked it, write us direct, giving his name and address. (Available in pints, 12 to case; half pints, 24 to case; quarter pints, 24 to case).

Write: RECTORSEAL Dept. A,
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RECTORSEAL # 2

MAKING THE L-P GAS INDUSTRY SAFER

oped during World War II and the the coating is applied by an electrostatic process sealing the pores of tinned surfaces. The electrostatic process permits the application of a heavier coat of zinc chromate than can be obtained by standard spraying procedures; also a more even coat of paint for better product appearance.

Rockwell Manufacturing Co. has announced that henceforth its Pittsburgh Equitable Meter and Nordstrom Valve Divisions will be located at 25 Beale St., San Francisco, Calif., and 1102 Delano St., Houston, Texas.

Two national manufacturers of liquefied petroleum gas equipment have announced the appointment of **Taylor Sales, Inc.,** of Dallas as their representative.

CECIL SQUIBB

Selwyn-Landers Co., of Los Angeles, designers and manufacturers of LP-Gas valves and fittings, safety hose nozzles, adaptors and couplings, have named the Taylor Sales organization as the exclusive distributor of their products in Missouri, Mississippi, Louisiana, Alabama, Georgia, Tennessee, Florida, Arkansas, Oklahoma and Texas.

The second firm selecting Taylor Sales, Inc., to represent them on LP-Gas equipment is **Fisher Governor Co.,** of Marshalltown, Iowa. Fisher manufactures pressure control equipment and has 70 years' experience in producing automatic controls. Taylor Sales from their headquarters in Dallas will be exclusive sales representa-

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One Piece Type in—15"-16"-19"-24"-28" Outside Diameter
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THE ONLY gas range connector using malleable iron fittings . . . a heavy flared tube fitting combined with special alloy aluminum tubing with *.049" wall thickness.* UNDERWRITERS APPROVED for all gases.

EASY DOES IT. The long 10° tapered cone of a Superseal fitting assures permanently gas-tight seal. There's no need to be "brutal" when tightening the nut, but you need not fear shearing the tubing or damaging the fitting. Tubing bends sharply close to the fitting — for flush-to-wall installations.

COMPETITIVELY PRICED. Available in any combination of elbows and straight fittings. Write for complete description. Over 400 U. S. Distributors . . . one near you.

Superseal
DIVISION
COLUMBIA MALLEABLE CASTINGS CORPORATION
COLUMBIA, PA.

tives for Fisher Governor Co. in Texas, Louisiana, Mississippi, Alabama and Tennessee.

While the Taylor Sales organization is young in years, its president and owner, Cecil E. Squibb, has long been identified with the industry in sales and engineering.

From the time Squibb organized his sales company he has been in charge of national distribution of Taylor visible gauges, manufactured by the J. Y. Taylor Co., of Garland, Texas.

Taylor Sales, Inc., has offices and showroom at 1213 South Akard St., Dallas.

JOHNZEY KEETH

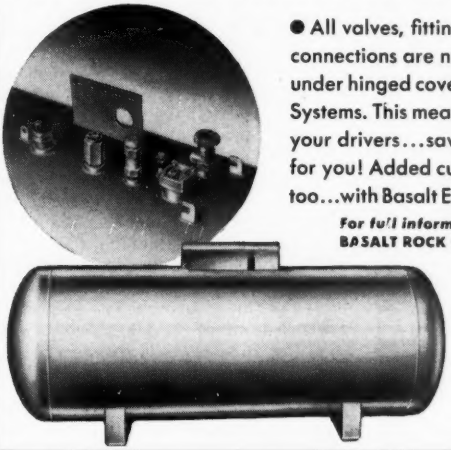
Caloric Stove Corp., Philadelphia manufacturer of gas ranges, has announced the recent appointment of Johnzey Keeth, of Tampa, as district sales representative in the state of Florida.

Mr. Keeth, who has been associated with the heating appliance field since 1937, brings to his new position a varied experience. Prior to the war he was a dealer in liquefied petroleum gas. From 1942 to 1944 he worked as heating engineer on Government projects, and since then has been identified with both wholesale and retail sales of gas ranges.

Dr. R. T. Goodwin, manager of **Shell Oil Co.'s** aviation department since 1941, has been named manager of the company's special products department in New York to succeed R. S. Mitchell. The latter has been

Basalt Engineered PROPANE SYSTEMS

...CONVENIENT CONTROLS PLEASE USERS, SAVE YOU MONEY!



● All valves, fittings, including lifting lug and connections are now conveniently *on top* and under hinged cover of Basalt Propane Storage Systems. This means faster, easier servicing by your drivers...saves their time...saves money for you! Added customer satisfaction is yours, too...with Basalt Engineered Propane Systems.

For full information write: Steel Products Div., BASALT ROCK CO., INC., Napa, California

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Economy... in the long run means dependable L-P Gas Equipment... We distribute only the best!
REGO GAS EQUIPMENT
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MUTUAL PROVEN PROFIT-BUILDERS

Revolutionary New Streamlined Design Of

Mutual FURNACES

means revolutionary new profits for you!

New, efficient, lightweight design is making Mutual Furnaces ever more popular with plumbers, tinsmiths and all craftsmen who need quick, concentrated heat. Easy to sell, easy to service Mutual equipment provides substantial year-round profits for you. Satisfaction guaranteed. Order today.

Illustrated above: New, streamlined Mutual Plumbers' Furnace No. 2 is an efficient, lightweight, lead-melting unit that speeds the job . . . saves time and work.

Mutual

LIQUID GAS EQUIPMENT CO., Inc.

3600 W. Imperial Highway, Inglewood, Calif.

MUTUAL PROVEN PROFIT-BUILDERS

appointed head of the company's St. Louis marketing division.

As manager of the special products department, Dr. Goodwin will be responsible for the marketing of an ever increasing number of petroleum derivatives used in industry and on the farm, including such products as liquefied petroleum gas, industrial solvents, sprays and waxes.

Appointment of E. J. Griffin as assistant to the general sales manager of Shell Oil Co., San Francisco office, is announced by J. G. Jordan, marketing vice president.

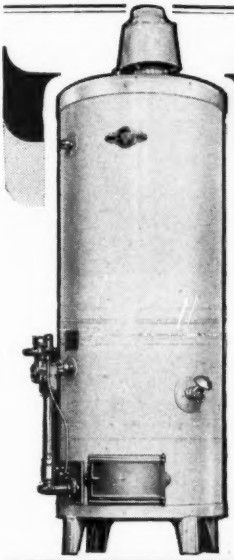
Mr. Griffin's transfer from Los Angeles, where he was division sales manager for the company, was effective on January 1. He started with Shell in 1930 as a yard-warehouseman in Butte, Mont.

FRANK DRAKE

W. B. Evans, president of **Tennessee Enamel Manufacturing Co.**, has announced the appointment of Frank Drake as sales manager of the company's gas heating division.

Mr. Drake started his career with Temco in 1941 as general accountant and was advanced to the sales department in 1943. In 1946 he was promoted to assistant sales manager and served in this capacity until his present appointment.

As sales manager, he will supervise the distribution of Temco heating equipment to 120 wholesalers serving more than 10,000 retail outlets in the United States, Canada and Mexico. Since its inception Temco has produced and sold over a million heating appliances.



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Greater grows the demand for SECURITY Automatic Hot Water Heaters. More and more buyers seek the smart appearance, dependable performance, superior workmanship for which SECURITY is famed. Thousands of users are amazed at the efficiency, economy and long life of these gleaming Automatic Water Heaters. Operate on all fuel gases. Now is the time to look to SECURITY . . . for leadership and for sales!

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The "LONG-LIFE" LINE

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Producers of high quality
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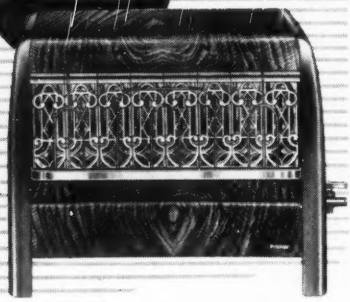

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Premier Radiant Gas Heaters—from 16,000 B.T.U. to 32,000 B.T.U. ratings—keep your customers warm and your cash register happy! There's real profit in popular, fast-selling Premier Gas Heaters—Quality Since 1912.

Premier
STOVE COMPANY
100 South Sixteenth Street
Belleville, Illinois

R. A. BISSELL

J. H. SWALLOW

The appointment of R. A. Bissell as assistant sales promotion manager of the **Bryant Heater Co.**, is announced by Frank J. Nugent, sales promotion manager.

Mr. Bissell, formerly connected with the Brooklyn Union Gas Co. and presently serving as a sales representative in the Bryant New York office, will move to the Cleveland headquarters of the Bryant Heater Co. He will assist in Bryant's expanded national and local advertising program for 1949.

The promotion of J. H. Swallow to the position of Southern district sales manager of the Bryant Heater Co. has been announced by J. N. Crawford, vice president in charge of sales.

Mr. Swallow has served as branch manager of the Bryant St. Louis office for the past three years.

In his new position, Mr. Swallow will make his headquarters at the Bryant factory in Tyler, Texas.

The tenth affiliated plant abroad of **Rheem Manufacturing Co.** is nearing completion at Buenos Aires, Argentina, and is scheduled to be in the production of steel shipping containers by March, 1949, it is announced by W. E. Zander, senior vice president.